EXCD-51

SERVICE MANUAL

US Model

Model Name Using Similar Mechanism	CDX-5070
CD Drive Mechanism Type	MG-305X-130
Optical Pick-Up Name	KSS-410A

SPECIFICATIONS

CD player section

System	Compact disc digital audio system
Signal-to- noise ratio	90 dB
Frequency response	10 – 20,000 Hz
Wow and flutter	Below measurable limit
Laser Diode Properties	
Material	GaAlAs
Wavelength	780 nm
Emission Duration	Continuous
Laser output power	Less than 44.6 μW*

* *This output is the value measured at a distance of 200 mm from the objective lens surface on the Optical Pick-up Block.*

Tuner section

FM

Tuning range	87.5 – 107.9 MHz
Antenna terminal	External antenna connector
Intermediate frequency	10.7 MHz
Usable sensitivity	8 dBf
Selectivity	75 dB at 400 kHz
Signal-to-noise ratio	65 dB (stereo), 68 dB (mono)
Harmonic distortion at 1 kHz	0.5 % (stereo), 0.3 % (mono)
Separation	35 dB at 1 kHz
Frequency response	30 – 15,000 Hz
Capture ratio	2 dB

AM

Tuning range	530 – 1,710 kHz
Antenna terminal	External antenna connector
Intermediate frequency	10.71 MHz/450 kHz
Sensitivity	30 μV

Power amplifier section

Outputs	Speaker outputs (sure seal connectors)
Speaker impedance	4 – 8 ohms
Maximum power output	30 W × 4 (at 4 ohms)

General

Output lead	Power amplifier control lead
Tone controls	Bass ±8 dB at 100 Hz Treble ±8 dB at 10 kHz
Power requirements	12 V DC car battery (negative ground)
Dimensions	Approx. 188 × 58 × 177 mm (7 1/2 × 2 × 7 in.) (w/h/d)
Mounting dimension	Approx. 178 × 50 × 154 mm (7 1/8 × 2 × 6 1/8 in.) (w/h/d)
Mass	Approx. 1.5 kg (3 lb 5 oz.)
Supplied accessories	Parts for installation and connections (1 set) Front panel case (1)

Design and specifications are subject to change without notice.

FM/AM COMPACT DISC PLAYER

SONY®

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SERVICING NOTES

Laser Diode Properties
- Material: GaAlAs
- Wavelength: 780 nm
- Emission Duration: continuous
- Laser Output Power: less than 44.6 μW*

  * This output is the value measured at a distance of 200 mm from the objective lens surface on the Optical Pick-up Block.

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic breakdown because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.
During repair, pay attention to electrostatic breakdown and also use the procedure in the printed matter which is included in the repair parts.
The flexible board is easily damaged and should be handled with care.

Flexible Circuit Board Repairing

- Keep the temperature of the soldering iron around 270 °C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

SAFETY-RELATED COMPONENT WARNING!!

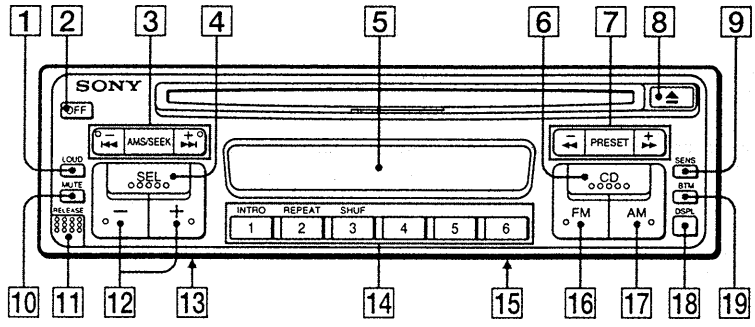
COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

This section is extracted from instruction manual.

SECTION 1

GENERAL

Location of Controls



Refer to the pages in ● for details.

1 LOUD (loudness) button ❾

2 OFF button ❹❻❾

3 AMS/SEEK (Automatic Music Sensor/ automatic tuning) button ❻❼

4 SEL (control mode select/character set) button ❺❾❿

5 Display window

6 CD (CD play) button ❻

7 PRESET (preset search) button ❻❽❾

8 ⏏ (eject) button ❻❾

9 SENS (sensitivity adjust) button ❼❽

10 MUTE button ❾

11 RELEASE (front panel release) button ❹❿

12 (volume/bass/treble/balance/ fader control) buttons ❺❾

13 Reset button (located on the front side of the unit hidden by the front panel) ❹

14 During radio reception:
Preset number buttons ❽

During CD playback:

1 INTRO (intro scan) button ❻

2 REPEAT (repeat play) button ❻

3 SHUF (shuffle play) button ❼

15 POWER SELECT switch (located on the bottom of the unit)
See "POWER SELECT Switch" in the Installation/Connections manual.

16 (radio on/band select) button ❻❼

17 (radio on/band select) button ❻❼

18 DSPL (display mode change/time set) button ❺

19 BTM (Best Tuning Memory function) button ❽

Installation

Precautions

- Do not tamper with the four holes on the upper surface of the unit. They are for tuner adjustments to be done only by service technicians.
- Choose the installation location carefully so that the unit will not hamper the driver during driving.
- Avoid installing the unit where it would be subject to high temperatures, such as from direct sunlight or hot air from the heater, or where it would be subject to dust, dirt or excessive vibration.
- Use only the supplied mounting hardware for a safe and secure installation.

Mounting angle adjustment

Adjust the mounting angle to less than 20°.

How to Detach and Attach the Front Panel

Before installing the unit, detach the front panel.

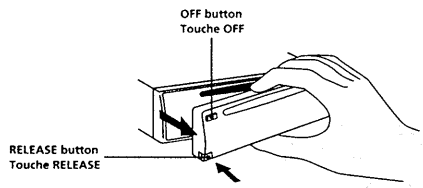
To detach

Before detaching the front panel, be sure to press the OFF button first. Then press the RELEASE button to open up the front panel by pulling it towards you as illlustrated.

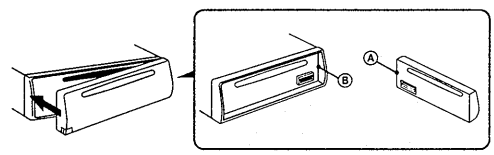
To attach

Align the parts Ⓐ and Ⓑ, and push the front panel until it clicks.

To detach
Retrait



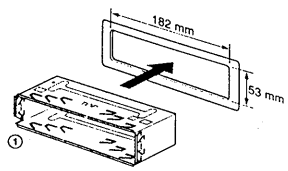
To attach
Pose



Mounting Example

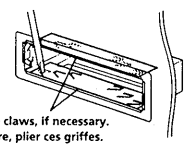
Installation in the dashboard

1



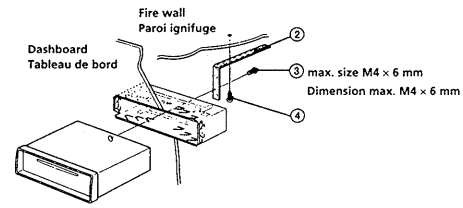
With the TOP marking up
Avec l'inscription TOP vers le haut

2



Bend these claws, if necessary.
Si nécessaire, plier ces griffes.

To support the unit
Pour installer l'appareil



Installation

Précautions

- Ne pas toucher les quatre orifices sur le panneau supérieur de l'appareil. Ils servent aux réglages du tuner qui ne doivent être effectués que par un technicien.
- Choisir soigneusement l'emplacement de l'installation, pour que l'appareil ne gêne pas la conduite.
- Eviter d'installer l'appareil dans un endroit exposé à des températures élevées, comme en plein soleil ou à proximité d'une bouche d'air chaud, ou à de la poussière, saleté ou vibrations violentes.
- Pour garantir un montage sûr, n'utiliser que le matériel fourni.

Réglage de l'angle de montage

Ajuster l'inclinaison à un angle inférieur à 20°.

Retrait et pose du panneau avant

Avant d'installer l'appareil, déposer la panneau avant.

Retrait

Avant de détacher la façade, appuyez sur la touche OFF. Appuyez ensuite sur la touche RELEASE pour ouvrir la façade. Enlevez-la en la tirant vers vous, comme indiqué sur l'illustration.

Pose

Aligner les points Ⓐ et Ⓑ, puis pousser l'appareil jusqu'au déclic.

Exemple de montage

Installation dans le tableau de bord

Connections

Caution

- This unit is designed for negative ground 12 V DC operation only.
- Before making connections, disconnect the ground terminal of the car battery to avoid short circuits.
- Connect the **yellow** and **red** power input leads only after all other leads have been connected.
- Be sure to connect the red power input lead to the positive 12 V power terminal which is energized when the ignition key is in the accessory position.
- **Run all ground wires to a common ground point.**
- The use of optical instruments with this product will increase eye hazard.

If Your Car has no Accessory Position on the Ignition Key Switch — POWER SELECT Switch

The illumination on the front panel is factory-set to be turned on even when the unit is not being played. However, this setting may cause some car battery wear **if your car has no accessory position on the ignition key switch.** To avoid this battery wear, **set the POWER SELECT switch located on the bottom of the unit to the ⓑ position, then press the reset button.** The illumination is reset to stay off while the unit is not being played.

Note

The caution alarm for the front panel is not activated when the POWER SELECT switch is set to the ⓑ position.

Connexions

Précautions

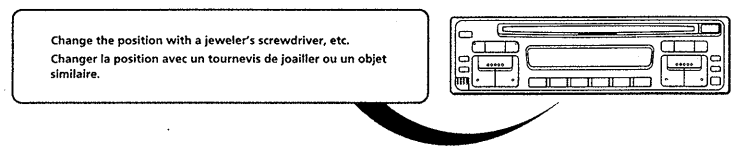
- Cet appareil est conçu pour fonctionner sur courant continu de 12 V avec masse négative.
- Avant d'effectuer les connexions, débrancher la borne de terre de la batterie du véhicule pour éviter tout court-circuit.
- Brancher les fils d'entrée d'alimentation **jaune** et **rouge** seulement après avoir terminé tous les autres branchements.
- Veiller à ne pas raccorder le fil rouge d'entrée d'alimentation à la borne positive de 12 V qui est alimentée quand la clé de contact est sur la position accessoires.
- **Rassembler tous les fils de terre en un point de masse commun.**

Si l'appareil est utilisé dans une voiture dont la clé de contact n'a pas de position accessoires — Interrupteur POWER SELECT

L'éclairage du panneau avant est réglé en usine de manière à s'allumer même quand l'appareil ne fonctionne pas. Cependant, ce réglage risque d'épuiser la batterie **si l'appareil est utilisé dans une voiture dont la clé de contact ne possède pas de position accessoires.** Pour éviter d'épuiser la batterie, régler l'interrupteur **POWER SELECT sur le socle de l'appareil sur la position ⓑ, puis appuyer sur la touche de réinitialisation.** L'éclairage est réglé pour rester éteint quand l'appareil n'est pas utilisé.

Remarque

Quand l'interrupteur POWER SELECT est réglé sur la position ⓑ, l'avertisseur du panneau avant ne fonctionne pas.

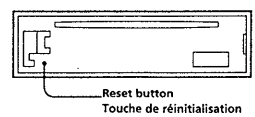

Change the position with a jeweler's screwdriver, etc.
Changer la position avec un tournevis de joailler ou un objet similaire.

Reset Button

When the installation and connections are over, be sure to press the reset button with a ball-point pen etc.

Touche de réinitialisation

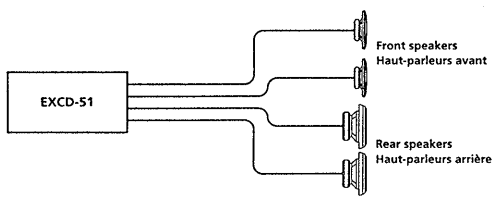
Quand l'installation et les connexions sont terminées, appuyer sur la touche de réinitialisation avec un stylo bille ou un objet pointu.



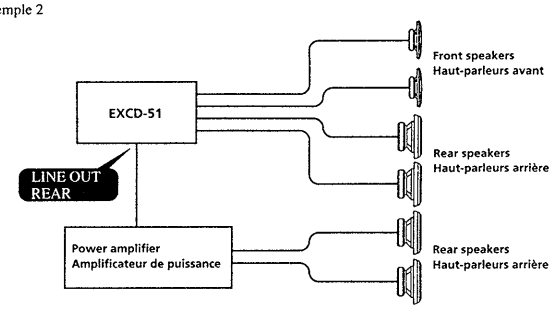
Connection Diagram

Schémas de connexion

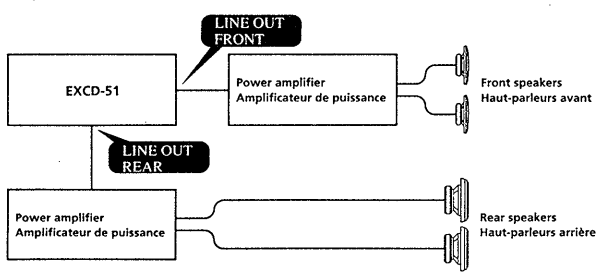
Example 1
Exemple 1



Example 2
Exemple 2

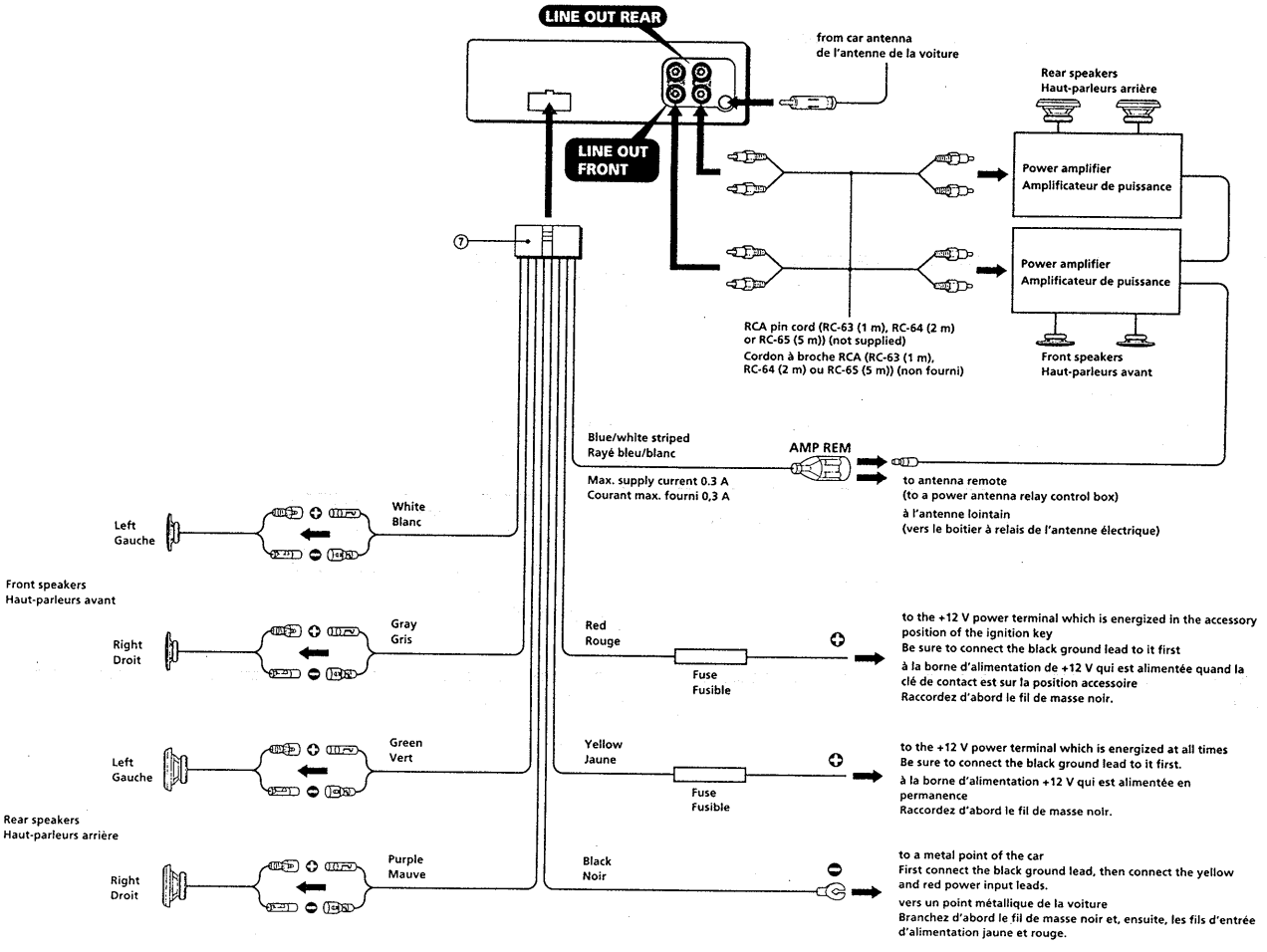


Example 3
Exemple 3



Connections of Example

Connexions de l'exemple


LINE OUT REAR
from car antenna
de l'antenne de la voiture
Rear speakers
Haut-parleurs arrière
LINE OUT FRONT
Power amplifier
Amplificateur de puissance
Power amplifier
Amplificateur de puissance
RCA pin cord (RC-63 (1 m), RC-64 (2 m) or RC-65 (5 m)) (not supplied)
Cordon à broche RCA (RC-63 (1 m), RC-64 (2 m) ou RC-65 (5 m)) (non fourni)
Front speakers
Haut-parleurs avant
Blue/white striped
Rayé bleu/blanc
AMP REM
Max. supply current 0.3 A
Courant max. fourni 0,3 A
to antenna remote
(to a power antenna relay control box)
à l'antenne lointain
(vers le boitier à relais de l'antenne électrique)
Left
Gauche
White
Blanc
Front speakers
Haut-parleurs avant
Right
Droit
Gray
Gris
Red
Rouge
Fuse
Fusible
to the +12 V power terminal which is energized in the accessory position of the ignition key
Be sure to connect the black ground lead to it first
à la borne d'alimentation de +12 V qui est alimentée quand la clé de contact est sur la position accessoire
Raccordez d'abord le fil de masse noir.
Left
Gauche
Green
Vert
Yellow
Jaune
Fuse
Fusible
to the +12 V power terminal which is energized at all times
Be sure to connect the black ground lead to it first.
à la borne d'alimentation +12 V qui est alimentée en permanence
Raccordez d'abord le fil de masse noir.
Rear speakers
Haut-parleurs arrière
Right
Droit
Purple
Mauve
Black
Noir
to a metal point of the car
First connect the black ground lead, then connect the yellow and red power input leads.
vers un point métallique de la voiture
Branchez d'abord le fil de masse noir et, ensuite, les fils d'entrée d'alimentation jaune et rouge.

Notes on the control leads

- *The AMP REM lead (blue/white striped) supplies +12 V DC when you turn on the unit. When the AMP REM lead is connected to the power antenna, the antenna will be extended as long as the unit is turned on.*
- *A power antenna without relay box cannot be used with this unit.*

Memory hold connection

When the yellow power input lead is connected, power will always be supplied to the memory circuit even when the ignition key is turned off.

Notes on speaker connection

- *Before connecting the speakers, turn the unit off.*
- *Use speakers with an impedance of 4 to 8 ohms, and with adequate power handling capacities. Otherwise, the speakers may be damaged.*
- *Do not connect the terminals of the speaker system to the car chassis, and do not connect the terminals of the right speaker with those of the left speaker.*
- *Do not attempt to connect the speakers in parallel.*
- *Do not connect any active speakers (with built-in amplifiers) to the speaker terminals of the unit. Doing so may damage the active speakers. Therefore, be sure to connect passive speakers to these terminals.*

Remarques sur les fils de contrôle

- *Le fil d'AMP REM (rayé bleu/blanc) fournit du courant continu de +12 V lorsque vous mettez l'appareil sous tension. Si le fil d'AMP REM est raccordé à l'antenne électrique, l'antenne restera déployée aussi longtemps que l'appareil sera sous tension.*
- *Une antenne électrique sans boîtier de relais ne peut pas être utilisée avec cet appareil.*

Connexion pour la conservation de la mémoire

Lorsque le fil d'entrée d'alimentation jaune est connecté, le circuit de la mémoire est alimenté en permanence même si la clé de contact est sur la position d'arrêt.

Remarques sur la connexion des haut-parleurs

- *Avant de raccorder les haut-parleurs, mettre l'appareil hors tension.*
- *Utiliser des haut-parleurs ayant une impédance de 4 à 8 ohms et une capacité adéquate sous peine de les endommager.*
- *Ne pas raccorder les bornes du système de haut-parleurs au châssis de la voiture et ne pas connecter les bornes du haut-parleur droit à celles du haut-parleur gauche.*
- *Ne pas tenter de raccorder les haut-parleurs en parallèle.*
- *Ne pas raccorder des haut-parleurs actifs (avec amplificateurs intégrés) aux bornes de haut-parleur de l'appareil sous peine de les endommager. Veiller à raccorder des haut-parleurs passifs à ces bornes.*

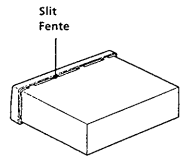
Mounting the Unit in a Japanese Car

You may not be able to install this unit in some makes of Japanese cars. In such a case, consult your Sony dealer.

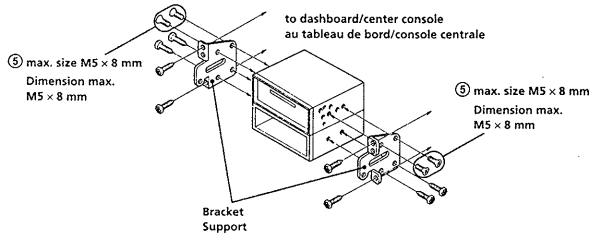
Installation de l'appareil dans une voiture japonaise

Si vous ne pouvez pas installer l'appareil dans une voiture japonaise, consultez votre revendeur Sony.

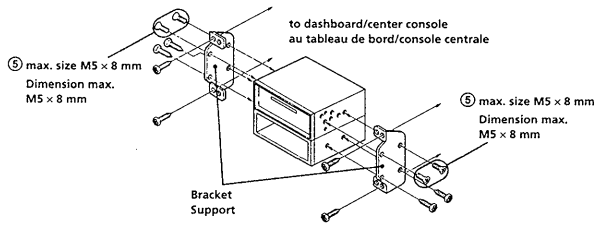
1 Run a blade along the slits on the back of the front trim and cut it off the unit.
Passer une lame le long des fentes à l'arrière de la bordure et la couper.



2 TOYOTA



NISSAN



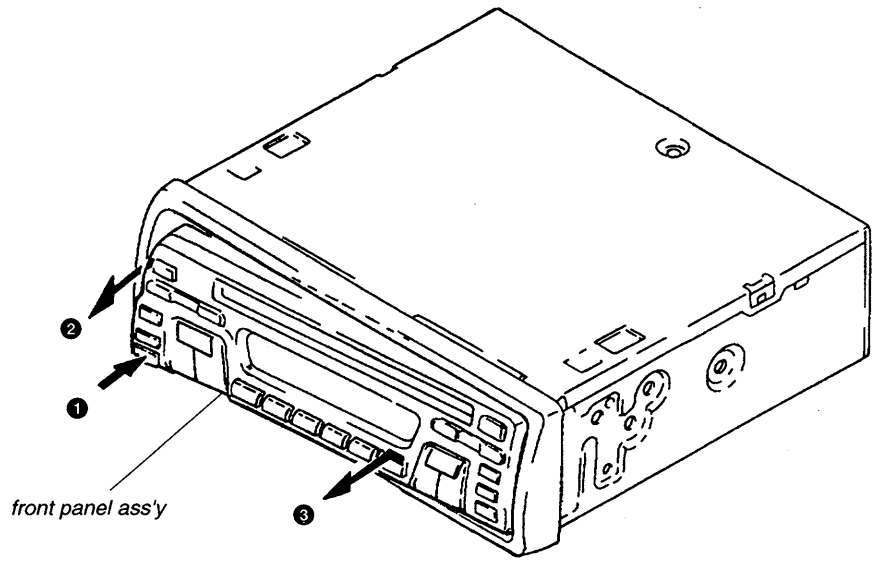
Note
To prevent malfunction, install only with the supplied screws ⑤ and use existing parts supplied to your car.

Remarque
Pour éviter tout dysfonctionnement, utilisez uniquement les vis de montage fournies ⑤ ainsi que les composants existants de votre voiture.

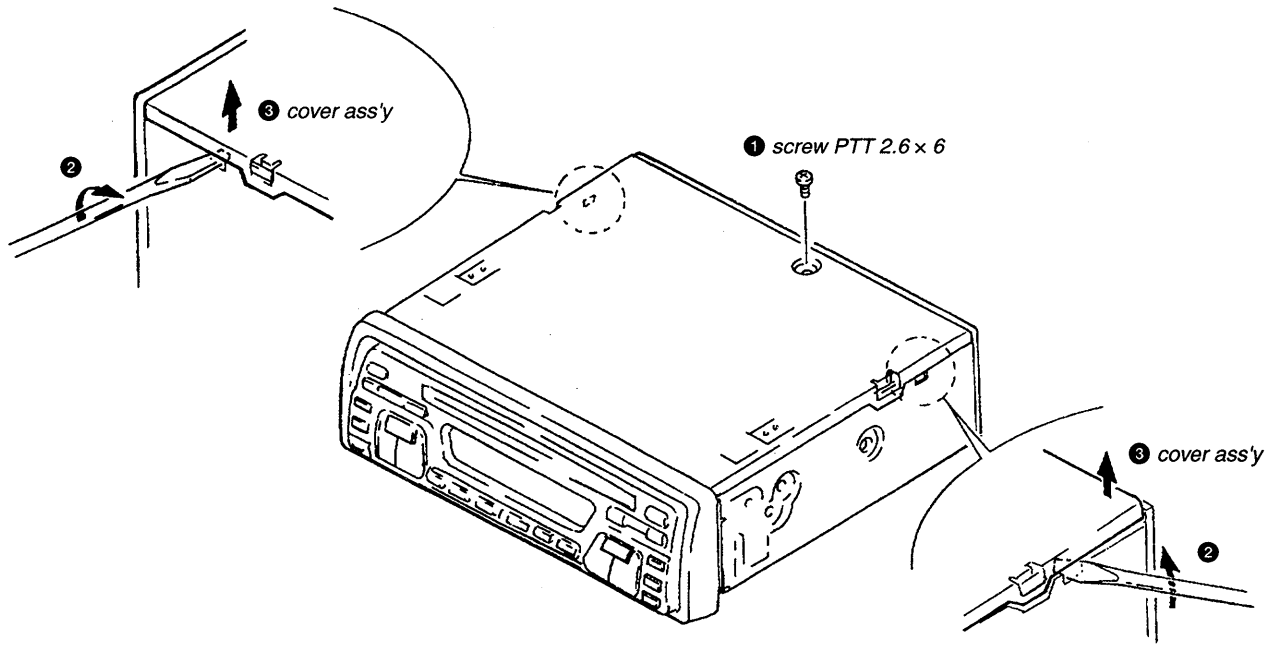
SECTION 2
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

FRONT PANEL ASS'Y



COVER ASS'Y



SECTION 3
TEST MODE

This set have the test mode function. In the test mode, FM Auto Scan/Stop Level and AM Auto Scan/Stop Level adjustments can be performed easier than it in ordinary procedure.

Set the Test Mode

1. Set the "OFF" mode.
2. Push the preset [4] button.
3. Push the preset [5] button.
4. Press the preset [1] button for two seconds.
5. Then the display indicates all lights, the test mode is set.

Release the Test Mode

1. Push the "OFF" button.

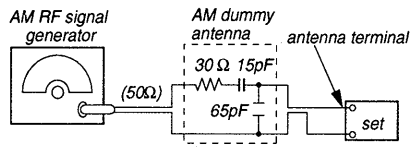
SECTION 4
ELECTRICAL ADJUSTMENTS

TUNER SECTION | **0dB=1μV**

Cautions during repair
When the front end is defective, replace it by a new one because its internal block is difficult to repair.

FM Auto Scan/Stop Level Adjustment

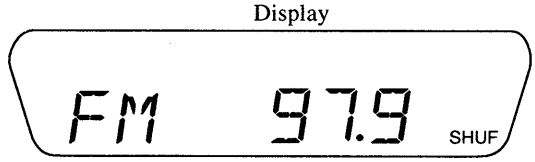
Setting:
FM button: FM



Carrier frequency : 1000kHz
30% amplitude modulation by 400Hz signal
Output level : 33dB (44.7 μV)

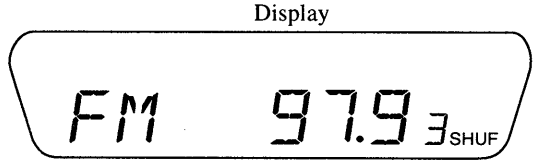
Procedure:
1. Set to the test mode.
2. Push the [FM] button and set to FM.

Display



3. Push the preset [3] button.

Display



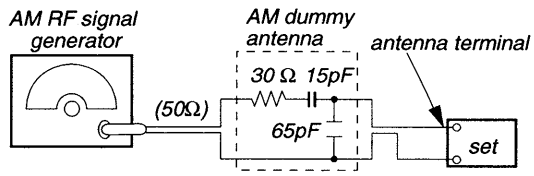
4. Adjust with the volume RV2 on FE601 so that the "FM" indication turns to "FM3" indication on the display window.
But, in case of already indicated "FM3", turn the RV2 so that put out light "3" indication and adjustment.

Display

Adjustment Location: See page 10.

AM Auto Scan/Stop Level Adjustment

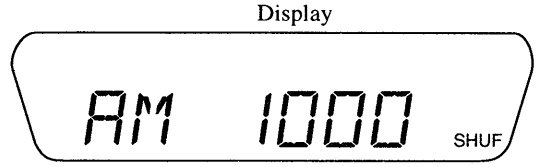
Setting:
AM button: AM



Carrier frequency : 1000kHz
30% amplitude modulation by 400Hz signal
Output level : 33dB (44.7 μV)

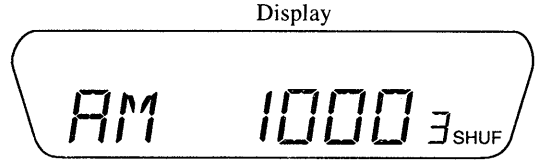
Procedure:
1. Set to the test mode.
2. Push the [AM] button and set to AM.

Display



3. Push the preset [3] button.

Display



4. Adjust with the volume RV1 on FE601 so that the "AM" indication turns to "AM3" indication on the diplay window.
But, in case of already indicated "AM3", turn the RV1 so that put out light "3" indication and adjustment.

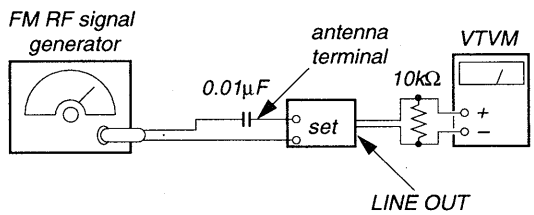
Display

Adjustment Location: See page 10.

FM Stereo Separation Adjustment

Setting:

FM button: FM



Carrier frequency : 97.9MHz
Output level : 60dB (1mV)
Mode : stereo
Modulation : main: 1kHz, 75kHz deviation (100%)
19kHz pilot: 7.5kHz deviation (10%)

Procedure:

FM stereo signal generator output channel	VTVM connection	VTVM reading (dB)
L-CH	L-CH	Ⓐ
R-CH	L-CH	Ⓑ Adjust RV4 on FE601 for minimum reading.
R-CH	R-CH	Ⓒ
L-CH	R-CH	Ⓓ Adjust RV4 on FE601 for minimum reading.

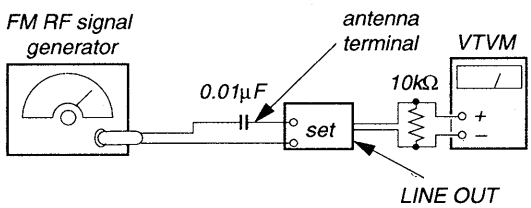
L-CH Stereo separation: Ⓐ–Ⓑ
R-CH Stereo separation: Ⓒ–Ⓓ
The separations of both channels should be equal.

Specification: Separation more than 30dB

FM Noise Focus Adjustment

Setting:

FM button: FM



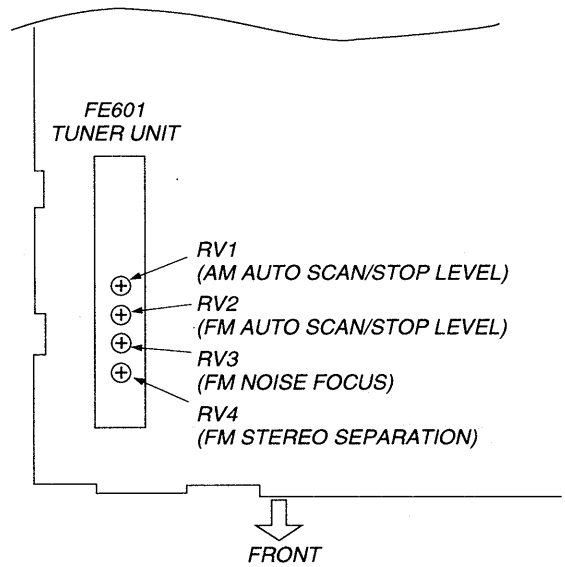
Carrier frequency : 97.9MHz
Output level : 60dB (1mV)
Mode : mono
Modulation : 1kHz, 75kHz deviation

Procedure:

1. Tune the 97.9 MHz.
2. The then output level is supposing that (B) dB.
3. Adjust with the volume RV3 on FE601 so that the output level is (B) –30dB then signal generator input set to –20dB.

Adjustment Location:

– MAIN BOARD –



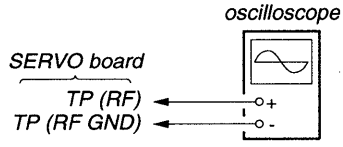
CD SECTION

Note:

1. CD Block basically constructed to operate without adjustment. Therefore, check each item in order given.
2. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
3. Use the oscilloscope with more than 10 MΩ impedance.
4. Clean an objective lens by an applicator with neutral detergent when the signal level is low than specified value with the following checks.

Focus Bias Adjustment

Setting: This adjustment is performed with the set placed horizontally.

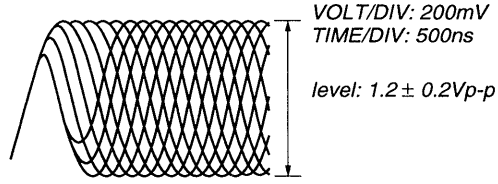


Procedure:

1. Connect an oscilloscope between TP (RE) and TP (RF GND) on the SERVO board.
2. Connect the power supply.
3. Push the RESET button (SW503) on the panel (sub).
4. Insert the disc (YEDS-18) and playback.
5. Adjust RV2 so that the oscilloscope waveform is clear and check RF signal level is correct or not.

Note: Clear RF signal waveform means that the shape "◇" can be clearly distinguished at the center of the waveform.

RF signal waveform

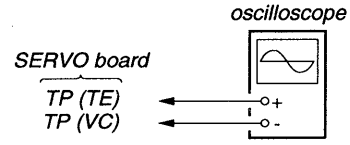


- When observing the eye pattern, set the oscilloscope to AC range and raise the vertical sensitivity so that it may be easily seen.

Adjustment Location: See page 12.

Tracking Balance Adjustment

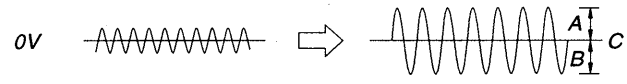
Setting: This adjustment is performed with the set placed horizontally.



Procedure:

1. Connect an oscilloscope between TP (TE) and TP (VC) on the SERVO board.
2. Connect the power supply.
3. Push the RESET button (SW503) on the panel (sub).
4. Insert the disc (YEDS-18). Then, press preset [1] (INTRO) button to turn tracking servo ON/OFF.
   (This servo is off while the "INTRO" indicator on the display is lit.)
5. Adjust RV1 so that the oscilloscope waveform observed when the tracking servo is off will be vertically symmetrical and fall within the level range shown below.

Traverse waveform *Tracking servo: OFF*

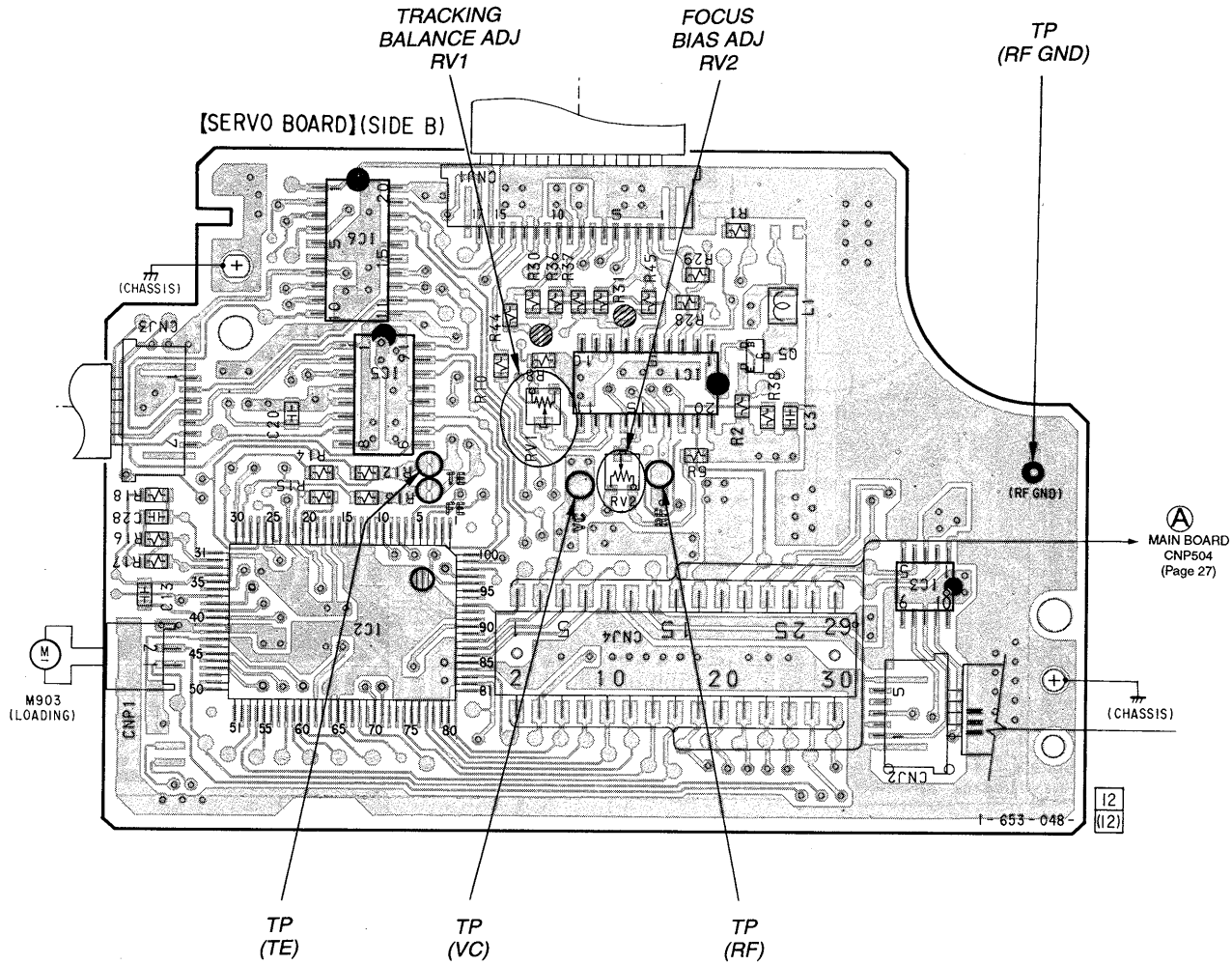


A+B=C
C=1.8±0.8Vp-p

Adjustment Location: See page 12.

Adjustment Location:

– SERVO BOARD (SIDE B) –



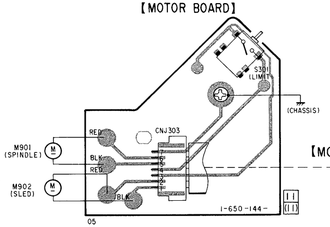
SECTION 5
DIAGRAMS

5-1. PRINTED WIRING BOARDS – MECHANISM DECK Section –

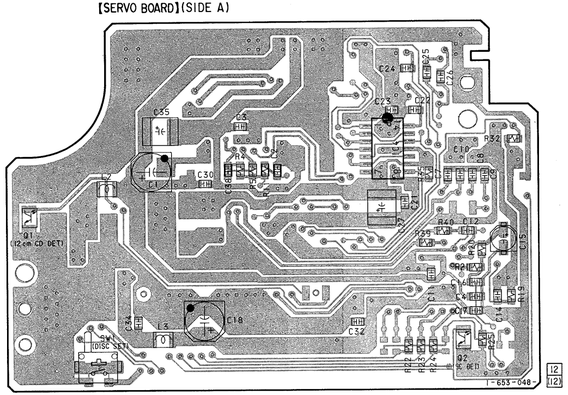
• **Semiconductor Location**

Ref. No.	Location
D801	B-21
D802	C-17
IC1	C-13
IC2	D-12
IC3	D-14
IC4	C-8
IC5	C-12
IC6	B-12
Q1	D-4
Q2	E-9
Q5	C-14

【MOTOR BOARD】



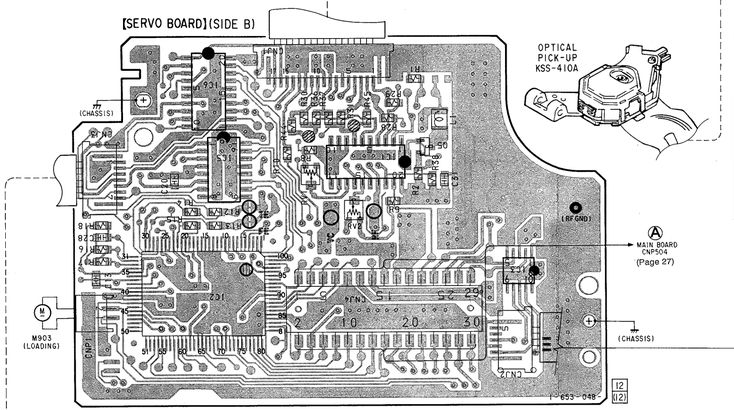
【SERVO BOARD】(SIDE A)



【MOTOR FLEXIBLE BOARD】 1-646-402- 31

【PICK-UP FLEXIBLE BOARD】 1-652-794-21

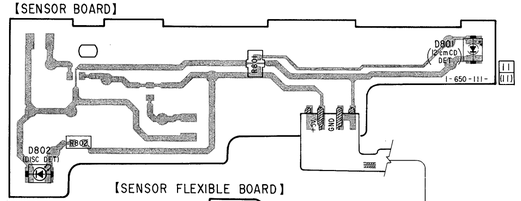
【SERVO BOARD】(SIDE B)



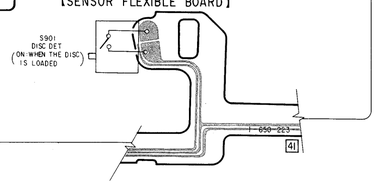
OPTICAL PICK-UP KSS-410A

A MAIN BOARD CNP504 (Page 27)

【SENSOR BOARD】



【SENSOR FLEXIBLE BOARD】



Note:
- ——o——: parts extracted from the component side.
- ○: Through hole.
- ▒▒▒: Pattern from the side which enables seeing.

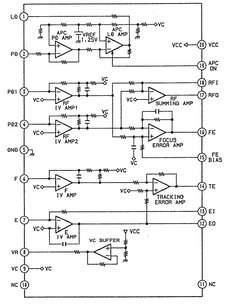
(The other layers' patterns are not indicated.)

Caution:

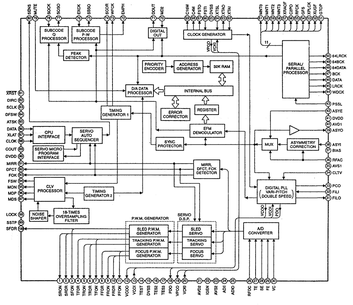
Pattern face side: (Side B)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Side A)	Parts on the parts face side seen from the parts face are indicated.

• IC Block Diagrams

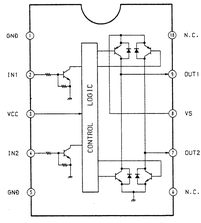
IC1 CXA1791M-T6



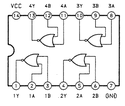
IC2 CXD2515Q



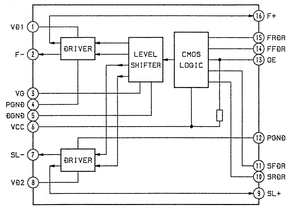
IC3 LB1638M



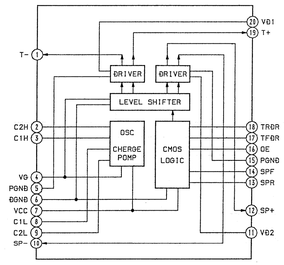
IC4 SN74HC02ANS



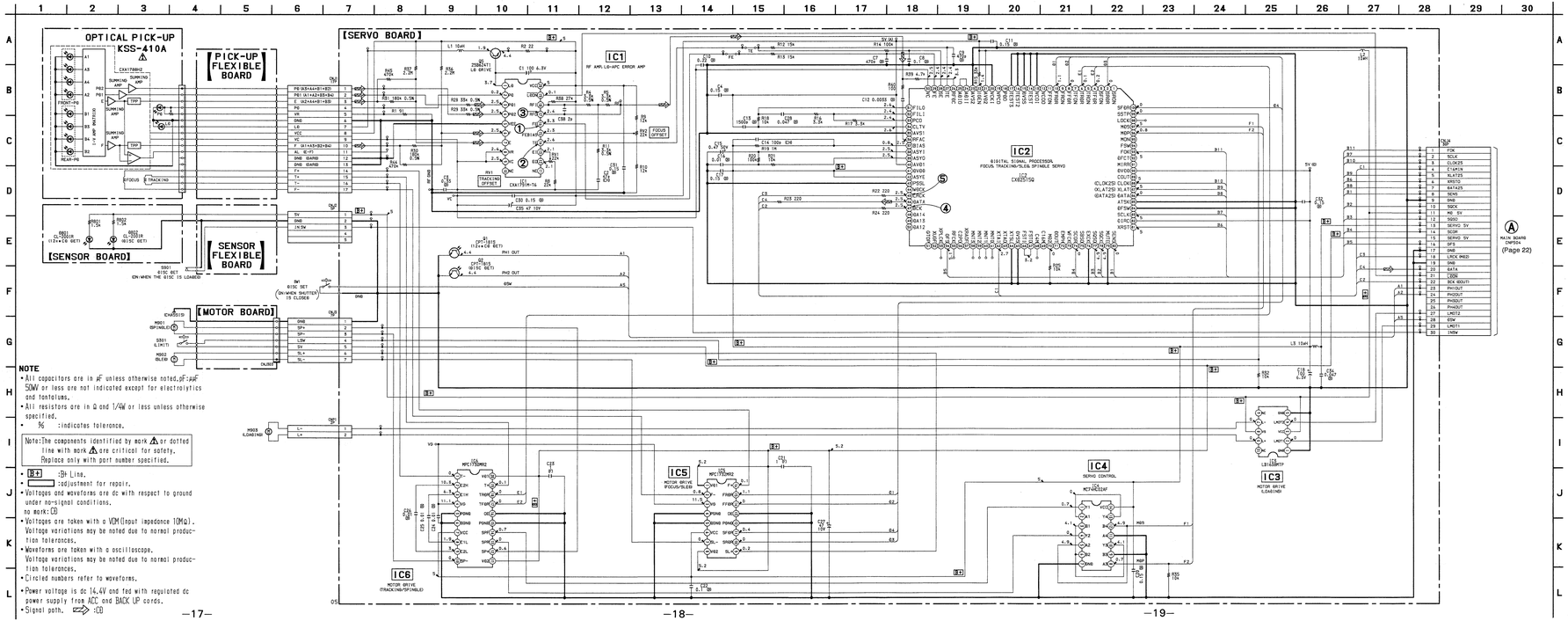
IC5 MPC1732MR2



IC6 MPC1730MR2



5-2. SCHEMATIC DIAGRAM – MECHANISM DECK Section –



NOTE

- All capacitors are in μF unless otherwise noted. pF: μμF
  50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- % : indicates tolerance.

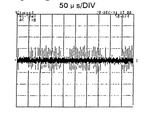
Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

- B+ Line.
- : adjustment for repair.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark: CD
- Voltages are taken with a VOM (input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Power voltage is dc 14.4V and fed with regulated dc power supply from ACC and BACK UP cords.
- Signal path. CD

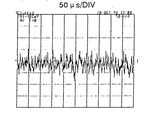
• Waveforms

Servo Board

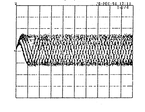
❶ IC1 ⑱ 50mV/DIV, 50 μs/DIV



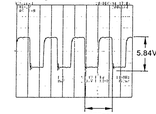
❷ IC1 ⑱ 100mV/DIV, 50 μs/DIV



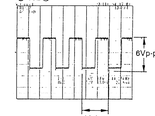
❸ IC1 ① 0.5V/DIV, 1 μs/DIV



❹ IC2 ㉗

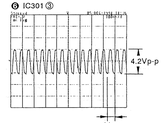


❺ IC2 ㉕

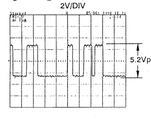


Main Board

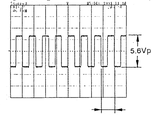
❻ IC301 ③



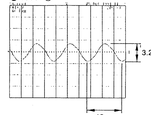
❼ IC301 ⑥ 100ns/DIV, 2V/DIV



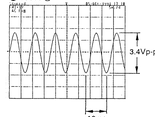
❽ IC301 ⑧



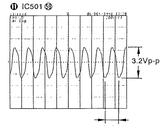
❾ IC301 ⑩



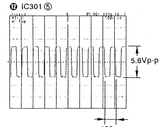
❿ IC603 ⑩



⓫ IC501 ⑭

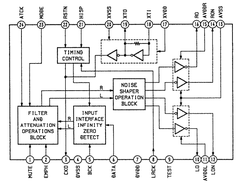


⓬ IC301 ⑤

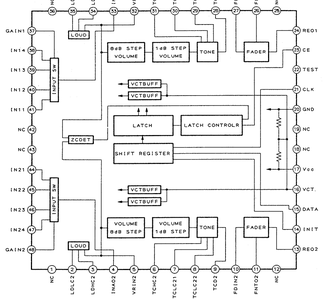


• IC Block Diagrams

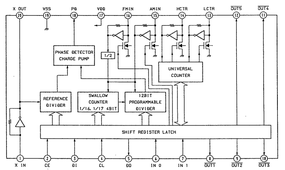
IC301 SM5874AM



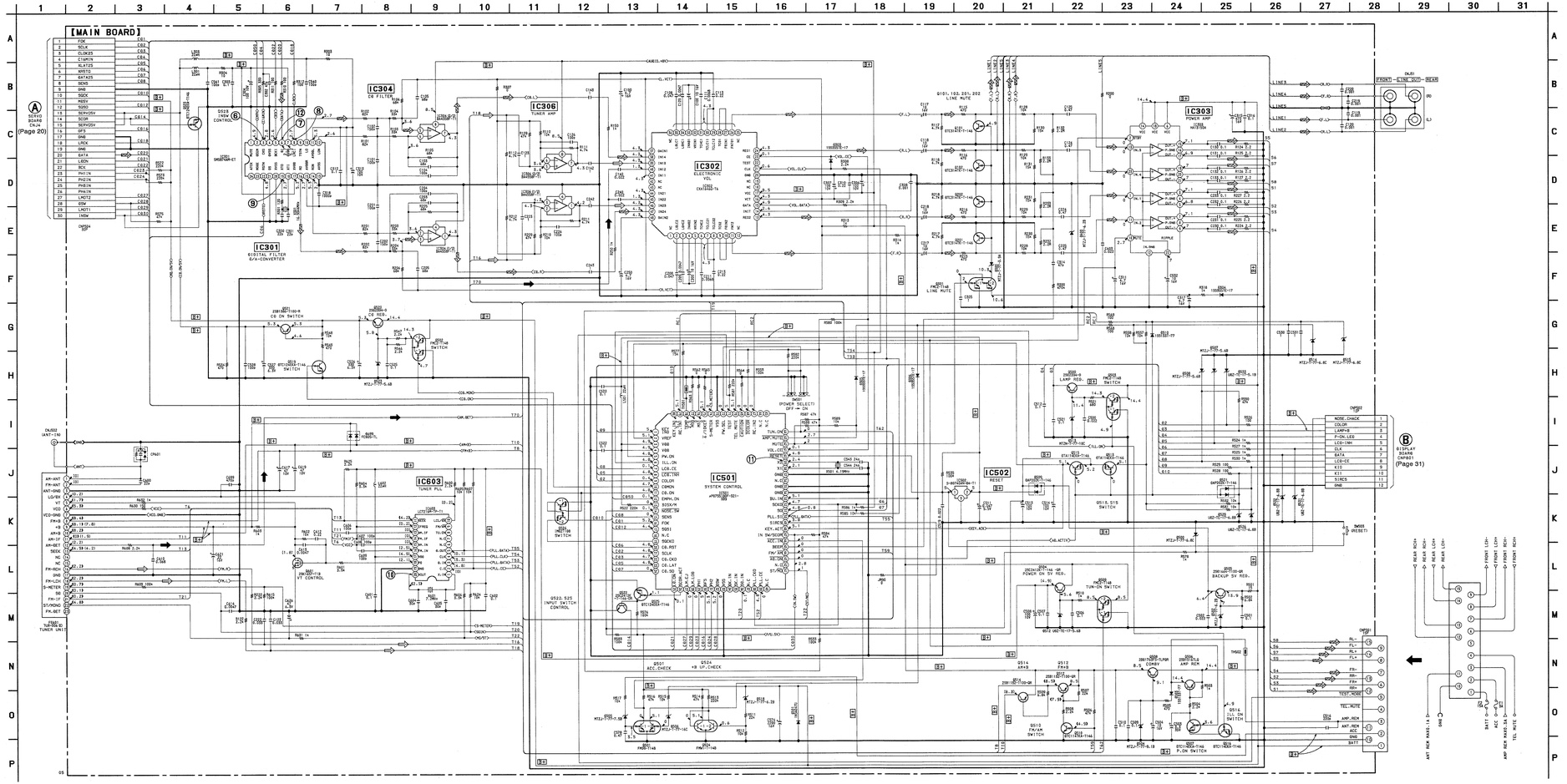
IC302 CXA1646Q



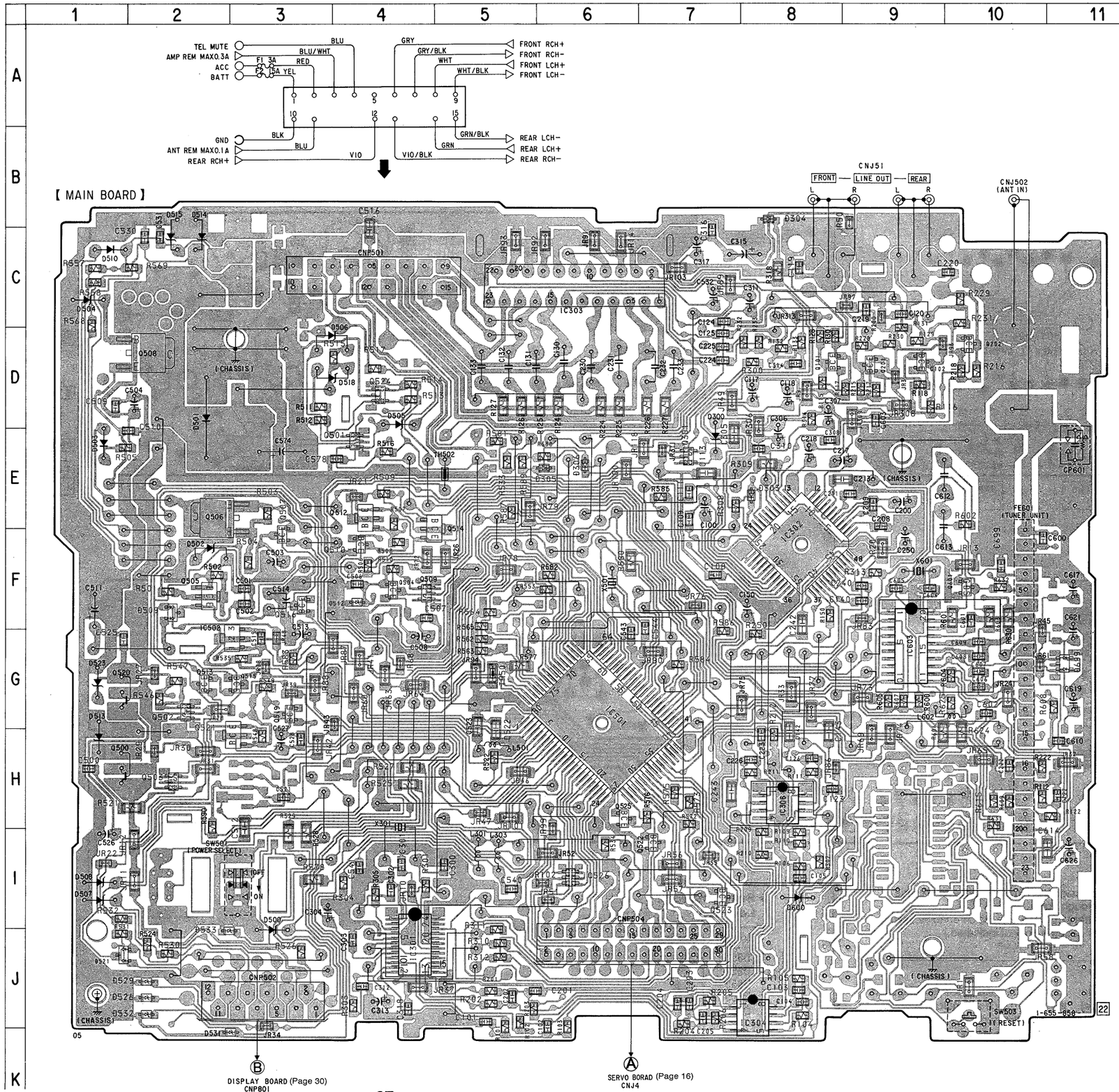
IC603 LC7216M



5-3. SCHEMATIC DIAGRAM – MAIN Section – • See page 21 for Waveforms.



5-4. PRINTED WIRING BOARD – MAIN Section –



• **Semiconductor Location**

Ref. No.	Location	Ref. No.	Location
D300	D7	IC306	H-8
D303	E-8	IC501	G-6
D304	B-8	IC502	G-2
D305	E-6	IC603	G-9
D306	E-6		
D500	I-3	Q101	D-8
D501	D-2	Q102	D-9
D502	F-2	Q201	D-9
D503	E-1	Q202	D-10
D504	C-1	Q301	E-7
D505	D-4	Q500	H-1
D506	D-4	Q501	E-4
D507	I-1	Q502	G-2
D508	I-1	Q503	H-2
D509	F-2	Q504	F-4
D510	C-1	Q505	F-2
D512	F-4	Q506	E-2
D513	G-1	Q507	E-3
D514	B-2	Q508	D-2
D515	B-2	Q509	F-4
D518	D-4	Q510	F-4
D521	J-1	Q512	E-4
D523	G-1	Q513	G-2
D526	J-1	Q514	F-5
D529	J-1	Q515	G-3
D531	K-2	Q516	F-3
D532	J-1	Q519	G-3
D533	J-2	Q520	G-1
D600	I-8	Q521	H-2
D699	G-11	Q522	I-7
		Q523	I-7
IC301	J-4	Q524	D-4
IC302	F-8	Q525	H-6
IC303	C-6	Q526	I-6
IC304	J-8	Q601	F-10

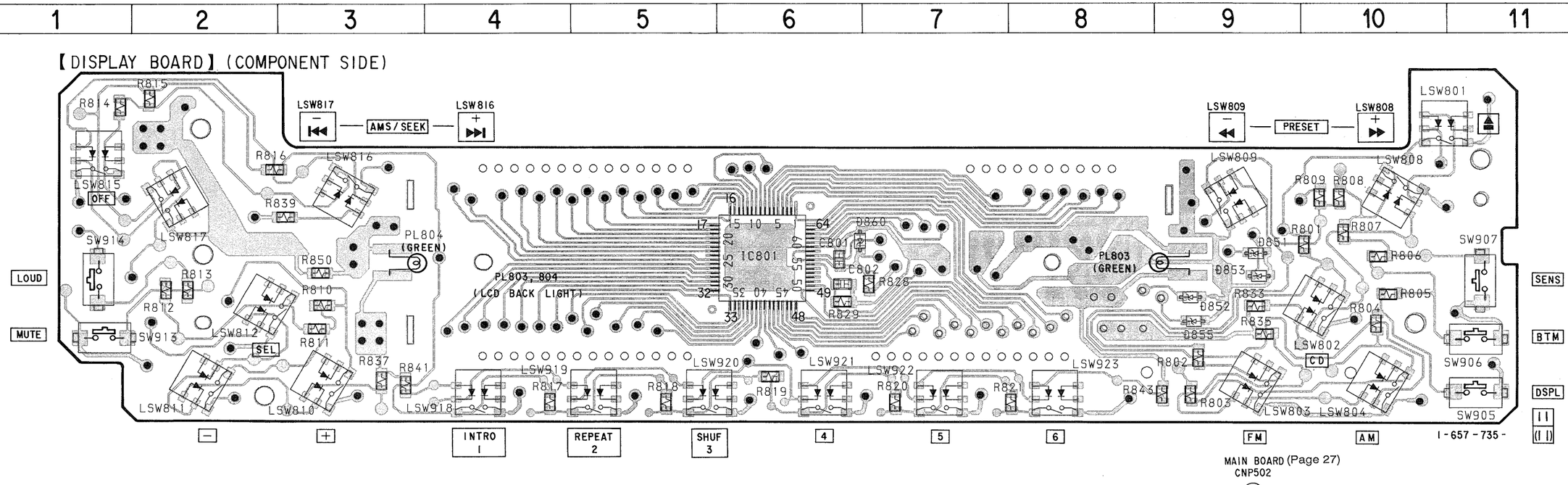
Note:

- ○——: parts extracted from the component side.
- ——: parts extracted from the conductor side.
- △: internal component.
- ▒▒: Pattern from the side which enables seeing.

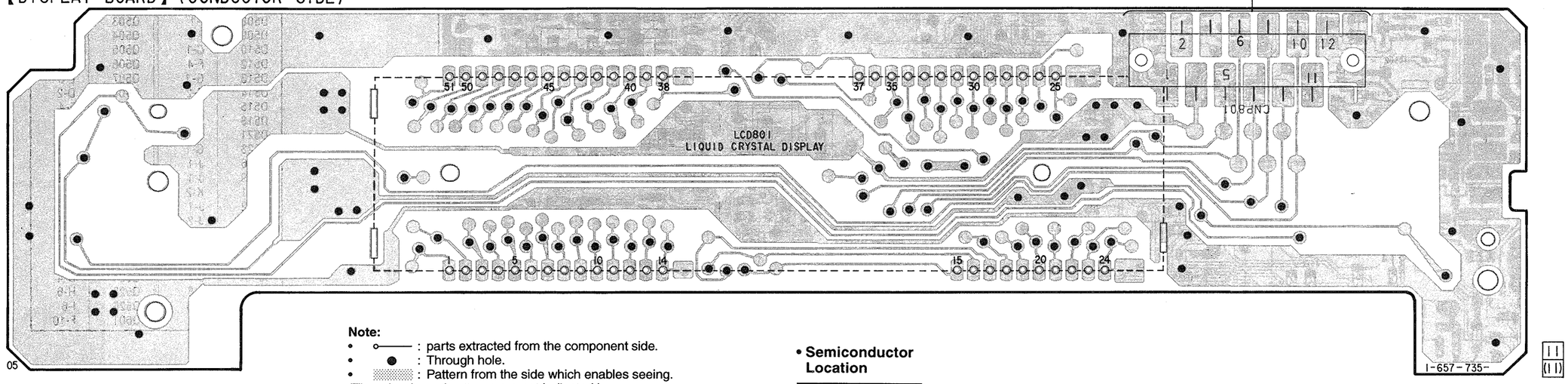
(The other layers' patterns are not indicated.)

5-5. PRINTED WIRING BOARD – DISPLAY Section –

【DISPLAY BOARD】(COMPONENT SIDE)



【DISPLAY BOARD】(CONDUCTOR SIDE)



Note:
- ○——— : parts extracted from the component side.
- ● : Through hole.
- ▒▒▒ : Pattern from the side which enables seeing.

(The other layers' patterns are not indicated.)

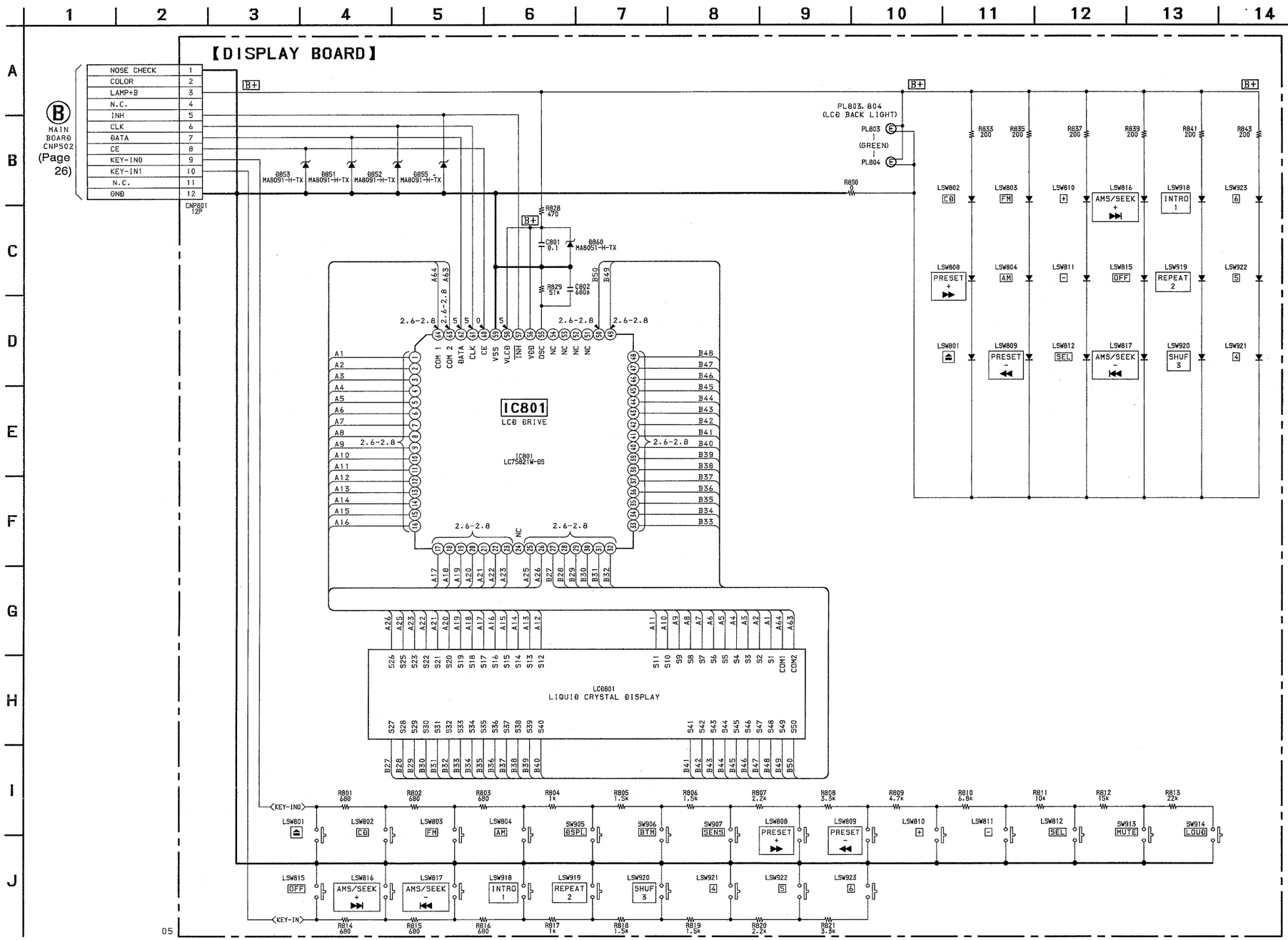
Caution:

Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the parts face are indicated.

• Semiconductor Location

Ref. No.	Location
D851	B-9
D852	B-9
D853	B-9
D855	C-9
D860	B-6
IC801	B-6

5-6. SCHEMATIC DIAGRAM – DISPLAY Section –



NOTE

- All capacitors are in μF unless otherwise noted. pF: μμF
  50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- ▭ :panel designation.
- B+ :B+ Line.
- Voltages are dc with respect to ground under no-signal conditions.
  no mark: FM
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Power voltage is dc 14.4V and fed with regulated dc power supply from ACC and BATT cords.

5-7. IC PIN FUNCTION DESCRIPTION

• IC501 SYSTEM CONTROL (μPD75518GF-321-3B9) (MAIN BOARD)

Pin No.	Pin Name	I/O	Function
1	KEY IN0	I	Key input pin. (A/D input.)
2	VREF	I	Reference voltage input pin of A/D conversion pins.
3	VDD	—	Power supply input. (5 V)
4	VDD	—	
5	PW.ON	O	On/off control pin of the system power supply. "H" : on
6	ILL.ON	O	Illumination power supply control output pin. "H" : on
7	LCD.CE	O	Pin which outputs chip enable to the LCD driver IC.
8	$\overline{\text{LCD.INH}}$	O	Pin which outputs inhibit to the LCD driver IC.
9	COLOR	O	Output pin for switching lighting colors. (amber/green)
10	CDMON	O	Power supply on/off control output pin. (mechanism deck section)
11	CD.ON	O	Power supply on/off control output pin. (CD servo IC)
12	EMPH.ON	O	Outputs "L" when a disc which has been pre-emphasized is played back.
13	305X/M	I	Timer value on eject end setting.
14	$\overline{\text{NOSE.SW}}$	I	Front panel Ass'y removal and attaching detection. "L" : attached
15	SENS	I	Sense signal input pin form CD servo IC.
16	FOK	I	Focus OK signal input pin form CD servo IC.
17	SQSI	I	CD Q data input pin.
18	N.C	—	Not used.
19	SQCKO	O	Clock output pin for reading the Q data.
20	CD.RST	O	CD servo IC resetting output pin.
21	SCLK	O	Serial clock output pin.
22	CD.CKO	O	Serial clock output pin for the CD servo IC.
23	CD.LAT	O	Serial data latch output pin for the CD servo IC.
24	CD.SO	O	Serial data output pin for the CD servo IC.
25	$\overline{\text{LD.ON}}$	O	CD servo system power supply control.
26	SCOR.ACT	O	Activate for sub-code sync detection signal line.
27	LM.EJ	O	Loading motor control output pin. (eject direction)
28	LM.LOD	O	Loading motor control output pin. (loading direction)
29	PH1	I	Mechanism deck sensor (loading /eject) input pin.
30	GFS	I	Guarded frame sync input pin form CD servo IC.
31	PH2	I	Mechanism deck sensor (loading /eject) input pin.
32	DSW	I	Mechanism deck sensor input pin. Detects the completion of the disc chucking operation.
33	VSS	—	GND.
34	DK.IN	I	DK input. (not used)
35	SK.IN	I	SK input. (not used)
36	SD.IN	I	Station detection signal input pin.
37	N.C	—	Not used.
38	PLL.CKO	O	Serial clock output pin for the PLL IC.
39	PLL.CE	O	Chip enable output pin for the PLL IC.
40	N.C	—	Not used.
41	ST/$\overline{\text{MO}}$	O	Output pin for switching control stereo/mono.
42	N.C	—	Not used.
43	$\overline{\text{AD.ON}}$	O	VREF control pin of A/D conversion pins.

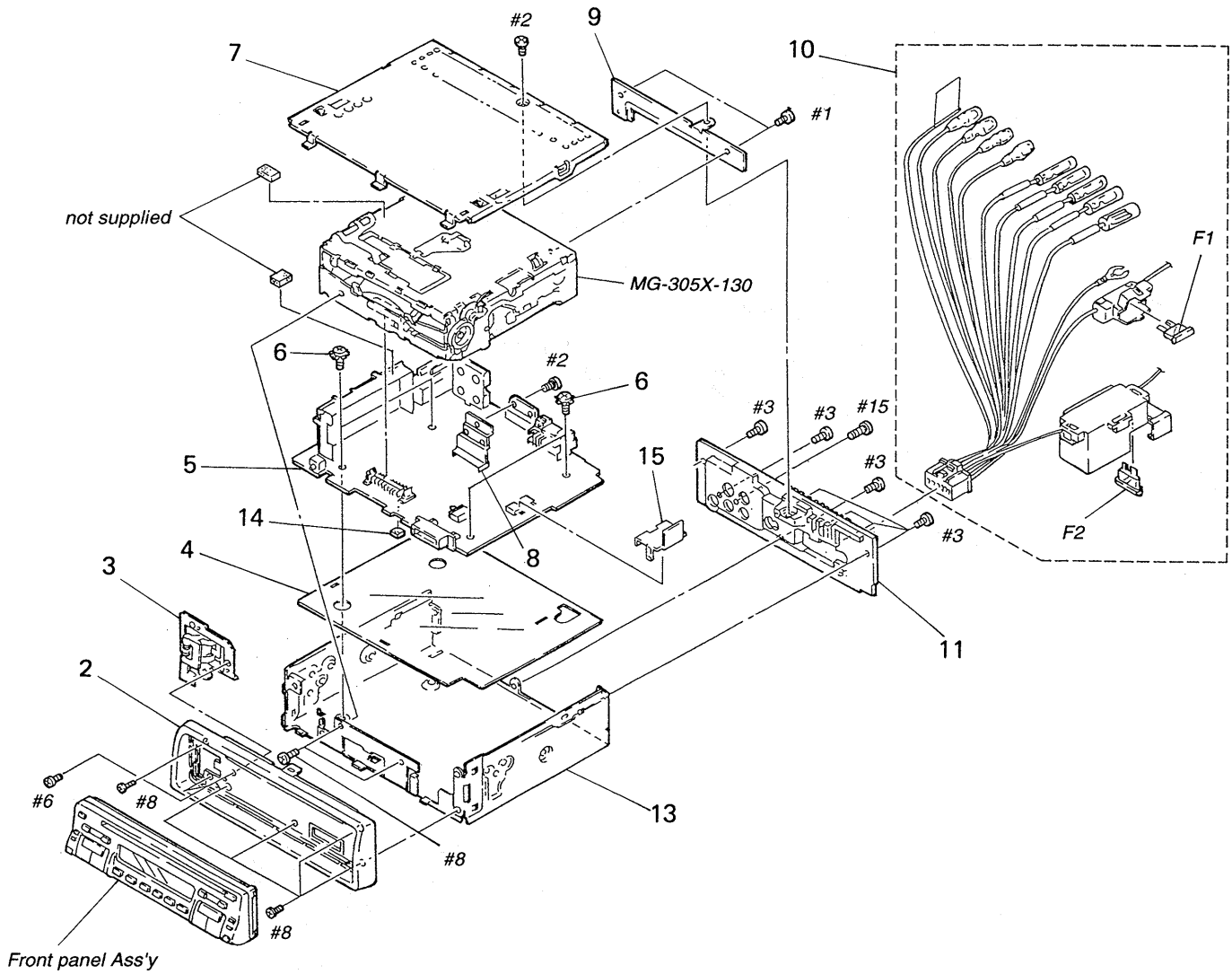
Pin No.	Pin Name	I/O	Function
44	FM/$\overline{AM}$	O	FM/AM select. "H" : FM, "L" : AM
45	BEEP	O	Beep sound output pin.
46	$\overline{ACC.IN}$	I	ACC line on/off detection. "L" : ACC on
47	IN SW/SCOR	I	CD PLAY: sub-code sync detection signal input pin. Others: MD roller open/close detect input.
48	KEY.ACT	I	Key input acknowledage.
49	SIRCS	I	Remote control signal input pin.
50	PLL.SI	I	Serial data input pin for the PLL IC.
51	SO	O	Serial data output pin for controlling LCD driver, tuner PLL, electronic VOL ICs.
52	SCKO	O	Serial clock output pin for controlling LCD driver, tuner PLL, electronic VOL ICs.
53	BU.IN	I	Battery line on/off detection.
54	GND	—	GND.
55	GND	—	GND.
56	N.C	—	Not used.
57	GND	—	GND.
58	X1	—	The system clock (4.19 MHz) for system control IC.
59	X2	—	
60	$\overline{RESET}$	I	Input pin for system reset. "L" : reset
61	VOL.CE	O	Chip enable output pin to the electronic VOL IC.
62	MUTE	O	Audio mute output pin. "H" : mute
63	$\overline{AMP.MUTE}$	O	Mute output pin for power amp IC.
64	TUN.ON	O	Tuner system power supply control.
65	N.C	—	Not used.
66	N.C	—	Not used.
67	RC.IN2	I	Rotary commander shift key input.
68	$\overline{2COLOR}$	I	One color/two color select. "L" : 2 color "H" : 1 color
69	$\overline{CAUTION}$	I	Alarm fnction is built in or not select. "L" : built in
70	TEL MUTE	I	Telephone mute input pin.
71	TEST	I	When connected to "L", test mode will be set.
72	PW.SEL	I	Power select switch input pin.
73	VSS	—	GND.
74	S-METER	I	S meter voltage detection pin.
75	$\overline{6}$/10 KEY	I	Pin which switches the preset key to 10 key or 6 key. "L" : 6 key, "H" : 10 key
76	MS1	I	Destination of tuner setting input pin. (fixed at "L")
77	MS0	I	
78	TEMP	I	Thermistor voltage for temperature detection input.
79	RC.IN1	I	Rotary commander shift key input.
80	KEY.IN1	I	Key input pin (A/D input)

SECTION 6
EXPLODED VIEWS

NOTE:
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of the electrical parts list.

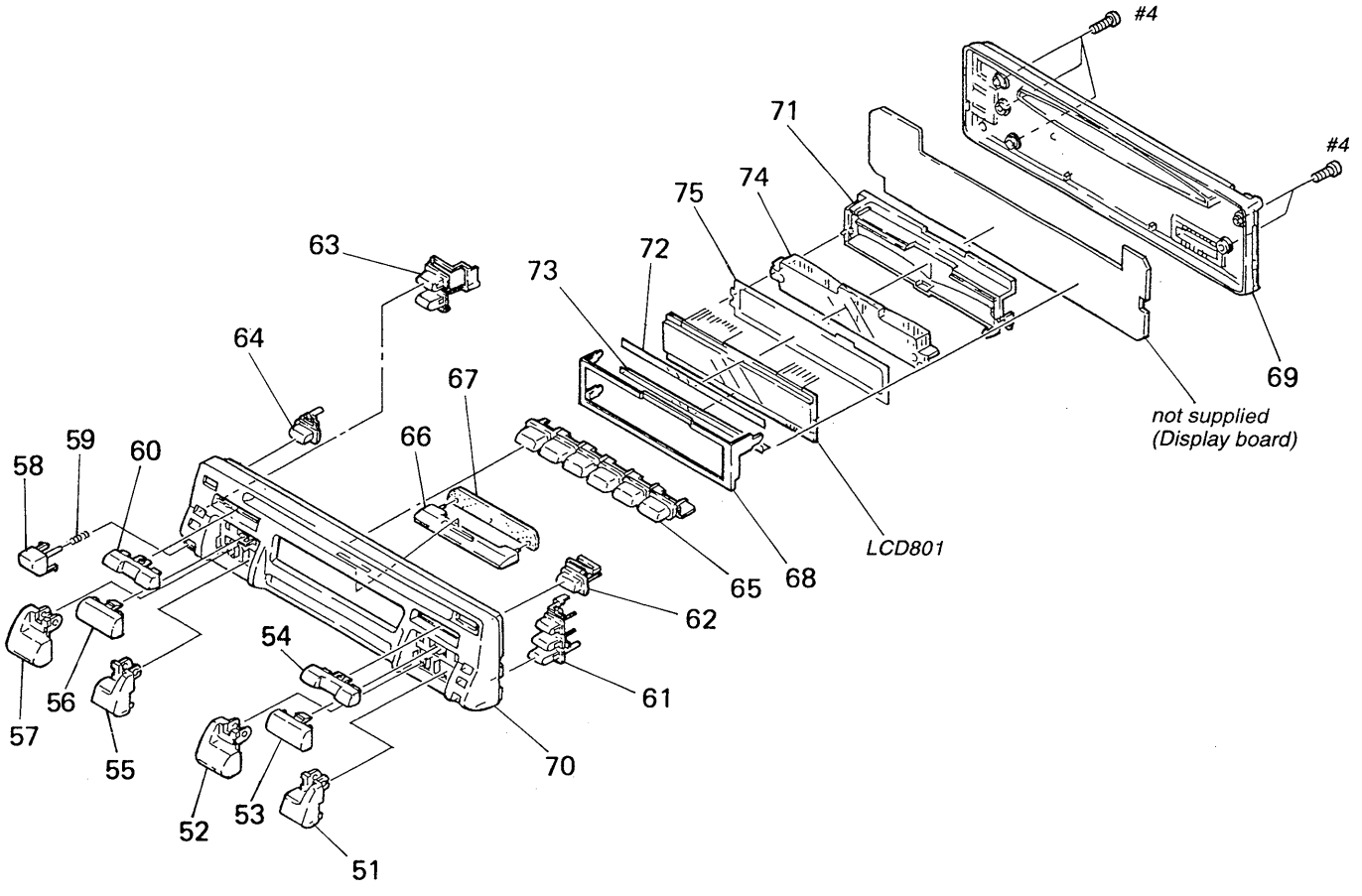
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

(1) GENERAL SECTION



Ref. No.	Part No.	Description	Remark
2	X-3371-552-1	PANEL (SUB) ASSY	
3	X-3367-636-1	LOCK ASSY	
4	3-921-921-01	SHEET, INSULATING	
* 5	A-3222-989-A	MAIN BOARD, COMPLETE	
6	3-915-923-01	SCREW, GROUND POINT	
* 7	X-3369-912-1	COVER ASSY	
* 8	3-932-468-01	BRACKET (IC)	
* 9	3-909-336-01	BRACKET (MD)	
10	1-769-773-11	CORD (WITH CONNECTOR) (POWER)	
* 11	3-921-923-11	HEAT SINK	
* 13	3-921-920-01	CHASSIS (MAIN)	
* 14	3-924-933-01	SPEACER (CN)	
* 15	3-932-471-01	HEAT SINK (T)	
F1	1-533-326-11	FUSE (BLADE TYPE) (AUTO FUSE) (3A)	
F2	1-533-331-11	FUSE (BLADE TYPE) (AUTO FUSE) (15A)	

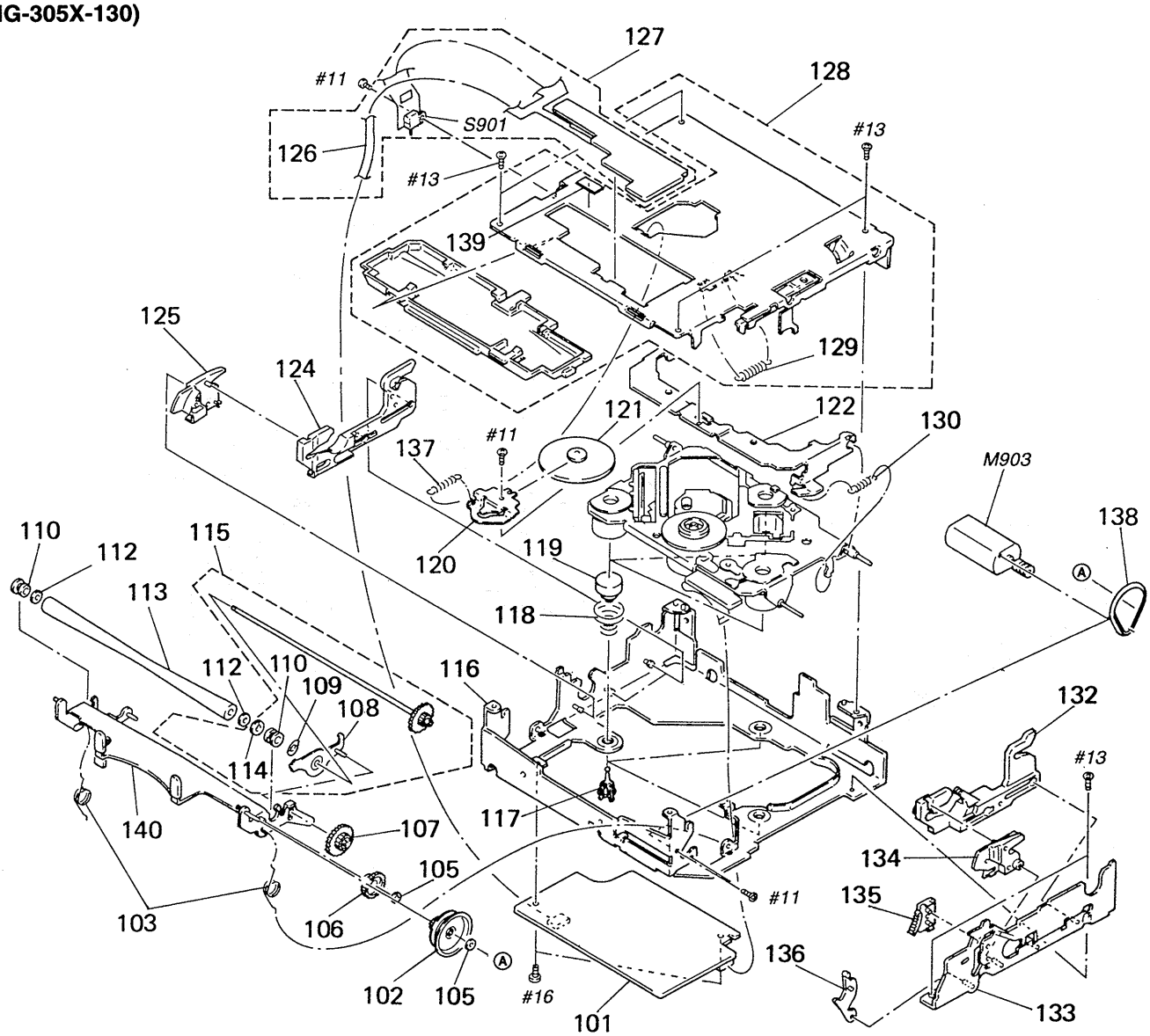
(2) FRONT PANEL SECTION



Ref. No.	Part No.	Description	Remark
51	3-918-683-21	BUTTON (R) (AM)	
52	3-918-682-11	BUTTON (L) (FM)	
53	3-918-681-01	BUTTON (U) (CD)	
54	3-924-235-01	BUTTON (PRE) (PRESET)	
55	3-918-679-01	BUTTON (+)	
56	3-918-678-01	BUTTON (SEL)	
57	3-918-680-01	BUTTON (-)	
58	3-918-689-01	BUTTON (RELEASE)	
59	3-932-475-01	SPRING (RELEASE)	
60	3-924-236-01	BUTTON (AMS)	
61	3-918-688-01	BUTTON (3 GANG) (SENS/BTM/DSPL)	
62	3-921-905-01	BUTTON (EJECT) (⏏)	
63	3-918-687-01	BUTTON (2 GANG) (LOUD/MUTE)	

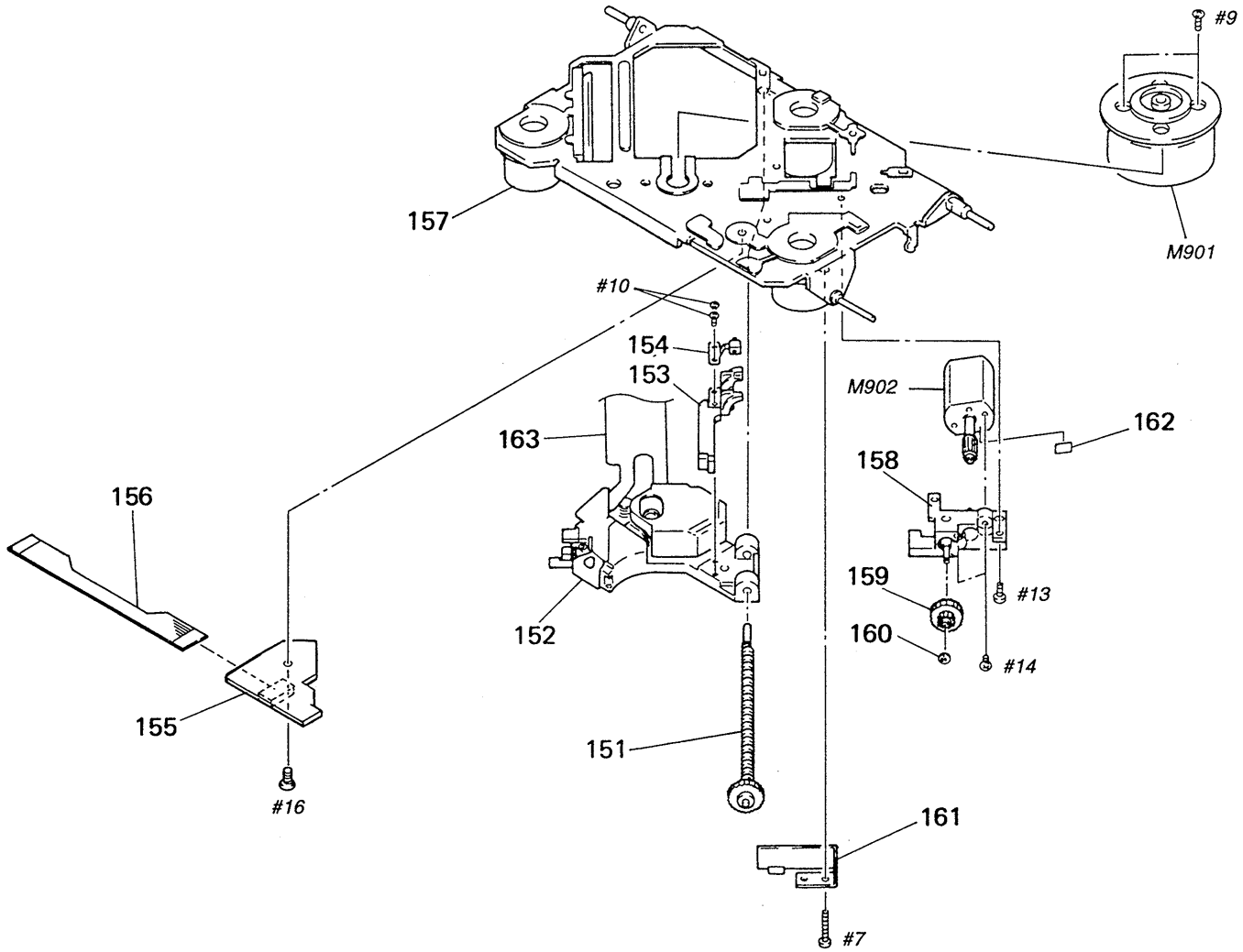
Ref. No.	Part No.	Description	Remark
64	3-924-234-01	BUTTON (OFF)	
65	3-924-237-01	BUTTON (6 KEY) (1/2/3/4/5/6)	
* 66	3-924-233-01	PLATE (CD), LIGHT GUIDE	
67	3-909-313-01	SHEET (DOOR F)	
68	3-924-231-01	PLATE (LCD), GROUND	
69	3-924-228-01	PANEL, FRONT BACK	
70	3-924-227-21	PANEL, FRONT	
* 71	3-924-229-01	HOLDER (LCD)	
* 72	3-932-474-01	SHEET (LU)	
* 73	3-932-473-01	SHEET (LD)	
* 74	3-924-230-01	PLATE (LCD), LIGHT GUIDE	
* 75	3-933-082-01	SHEET (REFLECTOR)	
LCD801	1-810-936-21	DISPLAY PANEL, LIQUID CRYSTAL	

(3) MECHANISM DECK SECTION-1 (MG-305X-130)



Ref. No.	Part No.	Description	Remark
101	A-3298-222-A	SERVO BOARD, COMPLETE	
102	3-384-894-01	GEAR (R1)	
103	3-384-900-01	SPRING (PRESS)	
105	3-578-242-11	WASHER	
106	3-384-895-01	GEAR (R2)	
107	3-384-896-01	GEAR (DOWN)	
108	X-3366-858-3	ARM ASSY, FRICTION	
109	3-384-899-01	SPRING (FRICTION)	
110	3-389-892-01	BEARING (ROLLER)	
112	3-701-438-11	WASHER, 2.5	
113	3-909-408-01	ROLLER (T)	
114	3-386-150-01	RING (ROLLER), RETAINING	
115	A-3252-591-A	GEAR ASSY, ROLLER	
116	X-3366-852-1	CHASSIS (M) ASSY	
117	3-384-923-01	SHAFT (DAMPER)	
118	3-384-916-01	SPRING (FL)	
119	3-384-914-01	DAMPER	
120	3-384-915-11	BRACKET (CP)	
121	3-384-918-01	RETAINER (DISC)	
122	3-384-908-11	ARM, CHUCKING	
124	3-384-888-01	SLIDER (L)	
125	3-384-887-01	LEVER (L)	
126	1-650-223-11	SENSOR FLEXIBLE BOARD)	
127	A-3222-525-A	SENSOR BOARD, COMPLETE	
128	X-3366-854-1	CHASSIS (T) ASSY	
129	3-384-881-02	SPRING (12)	
130	3-384-917-01	SPRING (CH)	
132	X-3366-102-1	SLIDER (R) ASSY	
133	X-3366-853-1	CHASSIS (R) ASSY	
134	3-384-889-01	LEVER (R)	
135	3-384-897-01	GEAR (RACK)	
136	3-384-891-01	LEVER (ST)	
137	3-388-331-01	SPRING (T)	
138	3-387-776-01	BELT (L)	
* 139	3-704-132-01	LABEL (K), SELF	
140	X-3366-857-1	ARM ASSY, ROLLER	
M903	A-3252-580-A	MOTOR (L) ASSY (LOADING)	
S901	1-692-441-11	SWITCH, MICROPHONE (DISC DET)	

(4) MECHANISM DECK SECTION-2
(MG-305X-130)



Ref. No.	Part No.	Description	Remark
151	A-3252-586-A	SHAFT (SL) ASSY	
⚠152	8-848-327-11	OPTICAL PICK-UP KSS-410A	
153	3-384-922-01	GEAR (SL FEED)	
154	3-384-920-01	RETAINER (SL FEED)	
* 155	1-650-144-11	MOTOR BOARD	
156	1-646-402-11	MOTOR FLEXIBLE BOARD	
157	X-3370-190-1	CHASSIS (OPT) ASSY (OUTSERT)	
158	X-3366-100-1	BASE (DRIVING) ASSY	

Ref. No.	Part No.	Description	Remark
159	3-384-912-01	GEAR (K2)	
160	3-570-615-00	POLY-WASHER (DIA. 1. 2)	
161	3-384-913-11	SPRING (THRUST RETAINER)	
* 162	3-920-313-01	CUSHION (SL)	
163	1-652-794-11	PICK-UP FLEXIBLE BOARD	
M901	X-3367-484-2	MOTOR (SPINDLE) ASSY	
M902	A-3252-585-A	MOTOR (SL) ASSY (SLED)	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only wiyh part number specified.

SECTION 7
ELECTRICAL PARTS LIST

DISPLAY

NOTE:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u:μ, for example:
  uA..: μA.. uPA..: μPA..
  uPB..: μPB.. uPC..: μPC.. uPD..: μPD..
- CAPACITORS
  uF: μF
- COILS
  uH: μH

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description		Remark
		DISPLAY BOARD, COMPLETE		
		**********		
		< CAPACITOR >		
C801	1-163-038-00	CERAMIC CHIP 0.1uF		25V
C802	1-163-137-00	CERAMIC CHIP 680PF	5%	50V
		< CONNECTOR >		
CNP801	1-764-423-11	PIN, CONNECTOR 12P		
		< DIODE >		
D851	8-719-422-97	DIODE MA8091-M		
D852	8-719-422-97	DIODE MA8091-M		
D853	8-719-422-97	DIODE MA8091-M		
D855	8-719-422-97	DIODE MA8091-M		
D860	8-719-422-43	DIODE MA8051-H		
		< IC >		
IC801	8-759-289-80	IC LC75821W-DS		
		< LIQUID CRYSTAL DISPLAY >		
LCD801	1-810-936-21	DISPLAY PANEL, LIQUID CRYSTAL		
		< SWITCH >		
LSW801	1-762-142-12	SWITCH, KEY BOARD (WITH LED) (⏏)		
LSW802	1-762-142-12	SWITCH, KEY BOARD (WITH LED) (CD)		
LSW803	1-762-142-12	SWITCH, KEY BOARD (WITH LED) (FM)		
LSW804	1-762-142-12	SWITCH, KEY BOARD (WITH LED) (AM)		
LSW808	1-762-142-12	SWITCH, KEY BOARD (WITH LED) (PRESET + ▶▶)		
LSW809	1-762-142-12	SWITCH, KEY BOARD (WITH LED) (PRESET ◀◀ -)		
LSW810	1-762-142-12	SWITCH, KEY BOARD (WITH LED) (+)		
LSW811	1-762-142-12	SWITCH, KEY BOARD (WITH LED) (-)		
LSW812	1-762-142-12	SWITCH, KEY BOARD (WITH LED) (SEL)		
LSW815	1-762-142-12	SWITCH, KEY BOARD (WITH LED) (OFF)		
LSW816	1-762-142-12	SWITCH, KEY BOARD (WITH LED) (AMS/SEEK + ▶▶I)		
LSW817	1-762-142-12	SWITCH, KEY BOARD (WITH LED) (AMS/SEEK I◀◀ -)		
LSW918	1-762-142-12	SWITCH, KEY BOARD (WITH LED) (INTRO 1)		
LSW919	1-762-142-12	SWITCH, KEY BOARD (WITH LED) (REPEAT 2)		
LSW920	1-762-142-12	SWITCH, KEY BOARD (WITH LED) (SHUF 3)		
LSW921	1-762-142-12	SWITCH, KEY BOARD (WITH LED) (4)		
LSW922	1-762-142-12	SWITCH, KEY BOARD (WITH LED) (5)		
LSW923	1-762-142-12	SWITCH, KEY BOARD (WITH LED) (6)		
		< PILOT LAMP >		
PL803	1-517-181-41	LAMP, PILOT (GREEN)		
PL804	1-517-181-41	LAMP, PILOT (GREEN)		
		< RESISTOR >		
R801	1-216-045-00	METAL CHIP 680	5%	1/10W
R802	1-216-045-00	METAL CHIP 680	5%	1/10W
R803	1-216-045-00	METAL CHIP 680	5%	1/10W
R804	1-216-049-00	METAL GLAZE 1K	5%	1/10W
R805	1-216-053-00	METAL CHIP 1.5K	5%	1/10W
R806	1-216-053-00	METAL CHIP 1.5K	5%	1/10W
R807	1-216-057-00	METAL CHIP 2.2K	5%	1/10W
R808	1-216-061-00	METAL CHIP 3.3K	5%	1/10W
R809	1-216-065-00	METAL CHIP 4.7K	5%	1/10W
R810	1-216-069-00	METAL CHIP 6.8K	5%	1/10W
R811	1-216-073-00	METAL CHIP 10K	5%	1/10W
R812	1-216-077-00	METAL CHIP 15K	5%	1/10W
R813	1-216-081-00	METAL CHIP 22K	5%	1/10W
R814	1-216-045-00	METAL CHIP 680	5%	1/10W
R815	1-216-045-00	METAL CHIP 680	5%	1/10W
R816	1-216-045-00	METAL CHIP 680	5%	1/10W
R817	1-216-049-00	METAL GLAZE 1K	5%	1/10W
R818	1-216-053-00	METAL CHIP 1.5K	5%	1/10W
R819	1-216-053-00	METAL CHIP 1.5K	5%	1/10W
R820	1-216-057-00	METAL CHIP 2.2K	5%	1/10W
R821	1-216-061-00	METAL CHIP 3.3K	5%	1/10W
R828	1-216-041-00	METAL CHIP 470	5%	1/10W
R829	1-216-090-00	METAL CHIP 51K	5%	1/10W
R833	1-216-032-00	METAL CHIP 200	5%	1/10W
R835	1-216-032-00	METAL CHIP 200	5%	1/10W
R837	1-216-032-00	METAL CHIP 200	5%	1/10W
R839	1-216-032-00	METAL CHIP 200	5%	1/10W
R841	1-216-032-00	METAL CHIP 200	5%	1/10W
R843	1-216-032-00	METAL CHIP 200	5%	1/10W
R850	1-216-295-00	CONDUCTOR, CHIP		(2012)

DISPLAY MAIN

Ref. No.	Part No.	Description			Remark
		< SWITCH >			
SW905	1-762-357-11	SWITCH (DSPL)			
SW906	1-762-357-11	SWITCH (BTM)			
SW907	1-762-357-11	SWITCH (SENS)			
SW913	1-762-357-11	SWITCH (MUTE)			
SW914	1-762-357-11	SWITCH (LOUD)			
**********					
*	A-3222-989-A	MAIN BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C100	1-126-157-11	ELECT	10uF	20%	16V
C101	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C102	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C103	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C104	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C105	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C108	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C109	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C111	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C113	1-163-081-00	CERAMIC CHIP	0.22uF		25V
C117	1-126-157-11	ELECT	10uF	20%	16V
C118	1-126-157-11	ELECT	10uF	20%	16V
C119	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C120	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C122	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C123	1-164-346-11	CERAMIC CHIP	1uF		16V
C124	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C125	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C126	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C130	1-136-165-00	FILM	0.1uF	5%	50V
C131	1-136-165-00	FILM	0.1uF	5%	50V
C132	1-136-165-00	FILM	0.1uF	5%	50V
C133	1-136-165-00	FILM	0.1uF	5%	50V
C140	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C142	1-162-638-11	CERAMIC CHIP	1uF		16V
C143	1-162-638-11	CERAMIC CHIP	1uF		16V
C150	1-126-288-11	ELECT	4.7uF	20%	16V
C200	1-126-157-11	ELECT	10uF	20%	16V
C201	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C202	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C203	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C204	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C205	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C208	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C209	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C211	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C213	1-163-081-00	CERAMIC CHIP	0.22uF		25V

Ref. No.	Part No.	Description			Remark
C217	1-126-157-11	ELECT	10uF	20%	16V
C218	1-126-157-11	ELECT	10uF	20%	16V
C219	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C220	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C222	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C223	1-164-346-11	CERAMIC CHIP	1uF		16V
C224	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C225	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C226	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C230	1-136-165-00	FILM	0.1uF	5%	50V
C231	1-136-165-00	FILM	0.1uF	5%	50V
C232	1-136-165-00	FILM	0.1uF	5%	50V
C233	1-136-165-00	FILM	0.1uF	5%	50V
C240	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C242	1-162-638-11	CERAMIC CHIP	1uF		16V
C243	1-162-638-11	CERAMIC CHIP	1uF		16V
C250	1-126-288-11	ELECT	4.7uF	20%	16V
C300	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C301	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C302	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C303	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C304	1-124-584-00	ELECT	100uF	20%	10V
C305	1-162-638-11	CERAMIC CHIP	1uF		16V
C306	1-124-584-00	ELECT	100uF	20%	10V
C307	1-124-584-00	ELECT	100uF	20%	10V
C308	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C310	1-164-222-11	CERAMIC CHIP	0.22uF		25V
C311	1-126-288-11	ELECT	4.7uF	20%	16V
C312	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C313	1-124-584-00	ELECT	100uF	20%	10V
C314	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C315	1-126-941-11	ELECT	470uF	20%	16V
C316	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C317	1-126-288-11	ELECT	4.7uF	20%	16V
C318	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C500	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C501	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C502	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C503	1-126-162-11	ELECT	3.3uF	20%	50V
C504	1-126-157-11	ELECT	10uF	20%	16V
C506	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C507	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C508	1-124-584-00	ELECT	100uF	20%	10V
C509	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C510	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C511	1-125-701-11	CAP, DOUBLE LAYER	0.047F		5.5V
C512	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C513	1-124-584-00	ELECT	100uF	20%	10V

Ref. No.	Part No.	Description			Remark
C514	1-124-584-00	ELECT	100uF	20%	10V
C516	1-163-189-00	CERAMIC CHIP	220PF	5%	50V
C519	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C521	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C522	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C523	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C525	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C526	1-128-057-11	ELECT	330uF	20%	6.3V
C527	1-128-057-11	ELECT	330uF	20%	6.3V
C528	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C530	1-164-346-11	CERAMIC CHIP	1uF		16V
C531	1-164-346-11	CERAMIC CHIP	1uF		16V
C532	1-126-157-11	ELECT	10uF	20%	16V
C540	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C541	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C543	1-163-102-00	CERAMIC CHIP	24PF	5%	50V
C544	1-163-102-00	CERAMIC CHIP	24PF	5%	50V
C574	1-126-597-11	ELECT	2200uF	20%	16V
C578	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C600	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C601	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C602	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C603	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C604	1-163-104-00	CERAMIC CHIP	30PF	5%	50V
C605	1-163-104-00	CERAMIC CHIP	30PF	5%	50V
C606	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C607	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C608	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C609	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C610	1-164-344-11	CERAMIC CHIP	0.068uF	10%	25V
C612	1-136-169-00	FILM	0.22uF	5%	50V
C613	1-137-368-11	FILM	0.0047uF	5%	50V
C614	1-163-055-00	CERAMIC CHIP	0.0047uF	10%	50V
C617	1-124-589-11	ELECT	47uF	20%	16V
C619	1-124-589-11	ELECT	47uF	20%	16V
C621	1-124-234-00	ELECT	22uF	20%	16V
C626	1-126-154-11	ELECT	47uF	20%	6.3V
C699	1-163-005-11	CERAMIC CHIP	470PF	10%	50V

< JACK >

CNJ51	1-764-697-11	JACK, PIN 4P (LINE OUT)	
CNJ502	1-764-808-11	JACK (ANT) (ANT IN)	

< CONNECTOR >

CNP501	1-764-426-11	PLUG, CONNECTOR 15P	
CNP502	1-764-422-11	PLUG, CONNECTOR 12P	
CNP504	1-764-617-12	PIN, CONNECTOR (PC BOARD) 30P BOARD	

Ref. No.	Part No.	Description		Remark
		< SPARK GAP CAPACITOR >		
CP601	1-519-504-11	GAP, DISCHARGE		
		< DIODE >		
D300	8-719-109-71	DIODE	RD3.9ES-B1	
D303	8-719-988-62	DIODE	1SS355	
D304	8-719-988-62	DIODE	1SS355	
D305	8-719-988-62	DIODE	1SS355	
D306	8-719-988-62	DIODE	1SS355	
D500	8-719-109-97	DIODE	RD6.8ES-B2	
D501	8-719-049-38	DIODE	1N5404TU	
D502	8-719-109-93	DIODE	RD6.2ESB2	
D503	8-719-991-33	DIODE	1SS133T-77	
D504	8-719-110-13	DIODE	RD9.1ESB2	
D505	8-719-921-63	DIODE	MTZJ-7.5B	
D506	8-719-923-93	DIODE	MTZJ-T-77-16C	
D507	8-719-109-89	DIODE	RD5.6ESB2	
D508	8-719-109-89	DIODE	RD5.6ESB2	
D509	8-719-914-44	DIODE	DAP202K	
D510	8-719-991-33	DIODE	1SS133T-77	
D512	8-719-158-15	DIODE	RD5.6S-B	
D513	8-719-921-77	DIODE	MTZN-10C	
D514	8-719-109-97	DIODE	RD6.8ES-B2	
D515	8-719-109-97	DIODE	RD6.8ES-B2	
D518	8-719-109-93	DIODE	RD6.2ESB2	
D521	8-719-914-44	DIODE	DAP202K	
D523	8-719-109-89	DIODE	RD5.6ESB2	
D526	8-719-056-83	DIODE	UDZ-TE-17-6.8B	
D529	8-719-056-83	DIODE	UDZ-TE-17-6.8B	
D531	8-719-056-83	DIODE	UDZ-TE-17-6.8B	
D532	8-719-056-83	DIODE	UDZ-TE-17-6.8B	
D533	8-719-976-99	DIODE	DTZ5.1B	
D600	8-719-109-93	DIODE	RD6.2ESB2	
D699	8-719-981-59	DIODE	FC805	
		< TUNER UNIT >		
FE601	A-3282-012-A	TUNER UNIT	TUX-006(E)	
		< IC >		
IC301	8-759-196-56	IC	SM5874AM	
IC302	8-752-063-44	IC	CXA1646Q	
IC303	8-759-260-77	IC	HA13150A	
IC304	8-759-909-71	IC	BA4558F	
IC306	8-759-909-71	IC	BA4558F	
IC501	8-759-380-50	IC	uPD75518GF-321-3B9	
IC502	8-759-503-60	IC	S-80740AN-D4-S	
IC603	8-759-823-81	IC	LC7216M	

MAIN

Ref. No.	Part No.	Description	Remark
		< JUMPER RESISTOR >	
JR1	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR3	1-216-295-00	CONDUCTOR, CHIP (2012)	
JR9	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR10	1-216-295-00	CONDUCTOR, CHIP (2012)	
JR11	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR12	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR13	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR14	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR20	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR21	1-216-295-00	CONDUCTOR, CHIP (2012)	
JR22	1-216-295-00	CONDUCTOR, CHIP (2012)	
JR24	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR26	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR27	1-216-295-00	CONDUCTOR, CHIP (2012)	
JR28	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR29	1-216-295-00	CONDUCTOR, CHIP (2012)	
JR30	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR31	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR32	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR33	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR34	1-216-295-00	CONDUCTOR, CHIP (2012)	
JR37	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR38	1-216-295-00	CONDUCTOR, CHIP (2012)	
JR39	1-216-295-00	CONDUCTOR, CHIP (2012)	
JR41	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR42	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR43	1-216-295-00	CONDUCTOR, CHIP (2012)	
JR45	1-216-295-00	CONDUCTOR, CHIP (2012)	
JR46	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR47	1-216-295-00	CONDUCTOR, CHIP (2012)	
JR48	1-216-295-00	CONDUCTOR, CHIP (2012)	
JR49	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR50	1-216-295-00	CONDUCTOR, CHIP (2012)	
JR51	1-216-295-00	CONDUCTOR, CHIP (2012)	
JR52	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR55	1-216-295-00	CONDUCTOR, CHIP (2012)	
JR56	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR57	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR58	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR60	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR61	1-216-295-00	CONDUCTOR, CHIP (2012)	
JR63	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR64	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR65	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR68	1-216-295-00	CONDUCTOR, CHIP (2012)	
JR69	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR72	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR73	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR74	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR75	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR76	1-216-295-00	CONDUCTOR, CHIP (2012)	
JR77	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR78	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR79	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR83	1-216-295-00	CONDUCTOR, CHIP (2012)	
JR86	1-216-295-00	CONDUCTOR, CHIP (2012)	
JR87	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR88	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR89	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR90	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR91	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR92	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR93	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR94	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR96	1-216-295-00	CONDUCTOR, CHIP (2012)	
JR97	1-216-295-00	CONDUCTOR, CHIP (2012)	
JR99	1-216-295-00	CONDUCTOR, CHIP (2012)	
JR100	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR101	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR102	1-216-295-00	CONDUCTOR, CHIP (2012)	
JR103	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR118	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR306	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR308	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR309	1-216-296-00	CONDUCTOR, CHIP (3216)	
JR311	1-216-295-00	CONDUCTOR, CHIP (2012)	
JR313	1-216-296-00	CONDUCTOR, CHIP (3216)	
		< COIL >	
L301	1-410-513-11	INDUCTOR 22uH	
L303	1-410-513-11	INDUCTOR 22uH	
L501	1-410-513-11	INDUCTOR 22uH	
L602	1-410-513-11	INDUCTOR 22uH	
		< TRANSISTOR >	
Q101	8-729-920-21	TRANSISTOR DTC314TKH04	
Q102	8-729-920-21	TRANSISTOR DTC314TKH04	
Q201	8-729-920-21	TRANSISTOR DTC314TKH04	
Q202	8-729-920-21	TRANSISTOR DTC314TKH04	
Q301	8-729-921-25	TRANSISTOR FMC2	
Q500	8-729-019-00	TRANSISTOR 2SD2394-G	
Q501	8-729-920-28	TRANSISTOR FMG9	
Q502	8-729-921-25	TRANSISTOR FMC2	
Q503	8-729-921-25	TRANSISTOR FMC2	
Q504	8-729-120-28	TRANSISTOR 2SC1623-L5L6	

Ref. No.	Part No.	Description	Remark
Q505	8-729-920-85	TRANSISTOR 2SD1664-QR	
Q506	8-729-033-23	TRANSISTOR 2SB1516TLQ	
Q507	8-729-900-53	TRANSISTOR DTC114EK	
Q508	8-729-922-65	TRANSISTOR 2SD1760F5-PQR	
Q509	8-729-921-25	TRANSISTOR FMC2	
Q510	8-729-027-60	TRANSISTOR DTC144TKA-T146	
Q512	8-729-903-46	TRANSISTOR 2SB1132-P	
Q513	8-729-027-23	TRANSISTOR DTA114EKA-T146	
Q514	8-729-903-46	TRANSISTOR 2SB1132-P	
Q515	8-729-027-23	TRANSISTOR DTA114EKA-T146	
Q516	8-729-900-53	TRANSISTOR DTC114EK	
Q519	8-729-027-52	TRANSISTOR DTC124EKA-T146	
Q520	8-729-019-00	TRANSISTOR 2SD2394-G	
Q521	8-729-025-88	TRANSISTOR 2SB1386-T100-R	
Q522	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q523	8-729-027-52	TRANSISTOR DTC124EKA-T146	
Q524	8-729-903-10	TRANSISTOR FMW1	
Q525	8-729-027-52	TRANSISTOR DTC124EKA-T146	
Q526	8-729-907-39	TRANSISTOR IMD2	
Q601	8-729-021-94	TRANSISTOR 2SK1657-T1B	
		< RESISTOR >	
R101	1-216-095-00	METAL CHIP 82K 5% 1/10W	
R102	1-216-095-00	METAL CHIP 82K 5% 1/10W	
R103	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R104	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R105	1-216-093-00	METAL CHIP 68K 5% 1/10W	
R106	1-216-093-00	METAL CHIP 68K 5% 1/10W	
R109	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R110	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R111	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R112	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R115	1-216-041-00	METAL CHIP 470 5% 1/10W	
R116	1-216-041-00	METAL CHIP 470 5% 1/10W	
R117	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R118	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R122	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R124	1-216-134-00	METAL CHIP 2.2 5% 1/8W	
R125	1-216-134-00	METAL CHIP 2.2 5% 1/8W	
R126	1-216-134-00	METAL CHIP 2.2 5% 1/8W	
R127	1-216-134-00	METAL CHIP 2.2 5% 1/8W	
R128	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R129	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R130	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R131	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R132	1-216-129-00	METAL CHIP 2.2M 5% 1/10W	
R133	1-216-129-00	METAL CHIP 2.2M 5% 1/10W	
R150	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R200	1-216-295-00	CONDUCTOR, CHIP (2012)	

Ref. No.	Part No.	Description	Remark
R201	1-216-095-00	METAL CHIP 82K 5% 1/10W	
R202	1-216-095-00	METAL CHIP 82K 5% 1/10W	
R203	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R204	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R205	1-216-093-00	METAL CHIP 68K 5% 1/10W	
R206	1-216-093-00	METAL CHIP 68K 5% 1/10W	
R209	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R210	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R211	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R212	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R215	1-216-041-00	METAL CHIP 470 5% 1/10W	
R216	1-216-041-00	METAL CHIP 470 5% 1/10W	
R217	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R218	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R222	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R224	1-216-134-00	METAL CHIP 2.2 5% 1/8W	
R225	1-216-134-00	METAL CHIP 2.2 5% 1/8W	
R226	1-216-134-00	METAL CHIP 2.2 5% 1/8W	
R227	1-216-134-00	METAL CHIP 2.2 5% 1/8W	
R228	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R229	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R230	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R231	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R232	1-216-129-00	METAL CHIP 2.2M 5% 1/10W	
R233	1-216-129-00	METAL CHIP 2.2M 5% 1/10W	
R250	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R300	1-216-113-00	METAL CHIP 470K 5% 1/10W	
R301	1-216-027-00	METAL CHIP 120 5% 1/10W	
R303	1-216-001-00	METAL CHIP 10 5% 1/10W	
R304	1-216-001-00	METAL CHIP 10 5% 1/10W	
R305	1-216-037-00	METAL CHIP 330 5% 1/10W	
R307	1-216-295-00	CONDUCTOR, CHIP (2012)	
R308	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R309	1-216-206-00	METAL GLAZE 2.2K 5% 1/8W	
R310	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R311	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R312	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R313	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R314	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R318	1-216-198-00	METAL GLAZE 1K 5% 1/8W	
R501	1-216-005-00	METAL CHIP 15 5% 1/10W	
R502	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R503	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R504	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R505	1-216-041-00	METAL CHIP 470 5% 1/10W	
R506	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R507	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R508	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	

MAIN MOTOR

Ref. No.	Part No.	Description			Remark
R509	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R510	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R511	1-216-081-00	METAL CHIP	22K	5%	1/10W
R512	1-216-073-00	METAL CHIP	10K	5%	1/10W
R513	1-216-105-00	METAL GLAZE	220K	5%	1/10W
R514	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R515	1-216-073-00	METAL CHIP	10K	5%	1/10W
R516	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R517	1-216-073-00	METAL CHIP	10K	5%	1/10W
R521	1-216-194-00	METAL CHIP	680	5%	1/8W
R522	1-216-105-00	METAL GLAZE	220K	5%	1/10W
R524	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R525	1-216-198-00	METAL GLAZE	1K	5%	1/8W
R526	1-216-025-00	METAL GLAZE	100	5%	1/10W
R527	1-216-198-00	METAL GLAZE	1K	5%	1/8W
R528	1-216-174-00	METAL GLAZE	100	5%	1/8W
R529	1-216-174-00	METAL GLAZE	100	5%	1/8W
R530	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R531	1-216-073-00	METAL CHIP	10K	5%	1/10W
R532	1-216-073-00	METAL CHIP	10K	5%	1/10W
R533	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R534	1-216-041-00	METAL CHIP	470	5%	1/10W
R535	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R546	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R547	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R548	1-216-073-00	METAL CHIP	10K	5%	1/10W
R549	1-216-041-00	METAL CHIP	470	5%	1/10W
R553	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R557	1-216-073-00	METAL CHIP	10K	5%	1/10W
R558	1-216-073-00	METAL CHIP	10K	5%	1/10W
R562	1-216-295-00	CONDUCTOR, CHIP			(2012)
R563	1-216-295-00	CONDUCTOR, CHIP			(2012)
R564	1-216-295-00	CONDUCTOR, CHIP			(2012)
R565	1-216-295-00	CONDUCTOR, CHIP			(2012)
R568	1-216-025-00	METAL GLAZE	100	5%	1/10W
R569	1-216-025-00	METAL GLAZE	100	5%	1/10W
R572	1-216-105-00	METAL GLAZE	220K	5%	1/10W
R573	1-216-105-00	METAL GLAZE	220K	5%	1/10W
R575	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R576	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R577	1-216-226-00	METAL GLAZE	15K	5%	1/8W
R578	1-216-198-00	METAL GLAZE	1K	5%	1/8W
R580	1-216-246-00	METAL GLAZE	100K	5%	1/8W
R581	1-216-105-00	METAL GLAZE	220K	5%	1/10W
R582	1-216-105-00	METAL GLAZE	220K	5%	1/10W
R583	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R584	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R585	1-216-073-00	METAL CHIP	10K	5%	1/10W
R586	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R587	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R588	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R589	1-216-073-00	METAL CHIP	10K	5%	1/10W
R590	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R600	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R601	1-216-212-00	METAL GLAZE	3.9K	5%	1/8W
R602	1-216-073-00	METAL CHIP	10K	5%	1/10W
R603	1-216-198-00	METAL GLAZE	1K	5%	1/8W
R604	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R605	1-216-073-00	METAL CHIP	10K	5%	1/10W
R606	1-216-210-00	METAL GLAZE	3.3K	5%	1/8W
R607	1-216-073-00	METAL CHIP	10K	5%	1/10W
R608	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R609	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R615	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R624	1-216-222-00	METAL GLAZE	10K	5%	1/8W
R625	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R630	1-216-178-00	METAL GLAZE	150	5%	1/8W
R631	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R632	1-216-049-00	METAL GLAZE	1K	5%	1/10W

< SWITCH >

SW501	1-571-478-11	SWITCH, SLIDE (POWER SELECT)
SW503	1-571-532-21	SWITCH, TACTIL (RESET)

< THERMISTOR >

TH501	1-810-890-11	THERMISTOR
TH502	1-809-148-11	THERMISTOR PTH8L07AR2R0M1B510

< VIBRATOR >

X301	1-760-839-21	VIBRATOR, CRYSTAL (16.9344MHz)
X501	1-567-861-21	VIBRATOR, CRYSTAL (4.19MHz)
X601	1-760-838-21	VIBRATOR, CRYSTAL (7.2MHz)

****

* 1-650-144-11 MOTOR BOARD
****

< CONNECTOR >

* CNJ303 1-750-160-21 CONNECTOR, FPC 7P

< SWITCH >

S301 1-572-467-21 SWITCH, PUSH (1 KEY) (LIMIT)

****

Ref. No.	Part No.	Description			Remark
	A-3222-525-A	SENSOR BOARD, COMPLETE			
		**********			
		(Including SENSOR FLEXIBLE BOARD)			
		< DIODE >			
D801	8-719-045-75	LED CL-200IR-X-TU (12cm CD DET)			
D802	8-719-045-75	LED CL-200IR-X-TU (DISC DET)			
		< RESISTOR >			
R801	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R802	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
**********					
	1-650-223-11	SENSOR FLEXIBLE BOARD			
		**********			
		< SWITCH >			
S901	1-692-441-11	SWITCH, MICROPHONE (DISC DET)			
**********					
	A-3298-222-A	SERVO BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C1	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C2	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C3	1-110-501-11	CERAMIC CHIP	0.33uF	10%	16V
C4	1-164-492-11	CERAMIC CHIP	0.15uF	10%	16V
C7	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C8	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C9	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C10	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C11	1-164-492-11	CERAMIC CHIP	0.15uF	10%	16V
C12	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V
C13	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
C14	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C15	1-126-191-11	ELECT CHIP	0.47uF	20%	50V
C16	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C17	1-164-492-11	CERAMIC CHIP	0.15uF	10%	16V
C18	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C20	1-164-492-11	CERAMIC CHIP	0.15uF	10%	16V
C21	1-164-346-11	CERAMIC CHIP	1uF		16V
C22	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C23	1-164-346-11	CERAMIC CHIP	1uF		16V
C24	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C25	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C26	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C27	1-135-166-21	TANTALUM CHIP	47uF	10%	10V
C28	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V

Ref. No.	Part No.	Description			Remark
C30	1-164-492-11	CERAMIC CHIP	0.15uF	10%	16V
C31	1-164-492-11	CERAMIC CHIP	0.15uF	10%	16V
C32	1-164-492-11	CERAMIC CHIP	0.15uF	10%	16V
C34	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C35	1-135-166-21	TANTALUM CHIP	47uF	10%	10V
C38	1-163-085-00	CERAMIC CHIP	2PF		50V
		< CONNECTOR >			
CNJ1	1-766-491-11	CONNECTOR, FPC 17P			
* CNJ2	1-750-159-21	CONNECTOR, FPC 5P			
* CNJ3	1-750-160-21	CONNECTOR, FPC 7P			
CNJ4	1-764-616-12	HOUSING, CONNECTOR (PC BOARD) 30P			
CNP1	1-580-055-21	PIN, CONNECTOR 2P			
		< IC >			
IC1	8-752-069-93	IC CXA1791M-T6			
IC2	8-752-361-94	IC CXD2515Q			
IC3	8-759-823-87	IC LB1638M			
IC4	8-759-925-72	IC SN74HC02ANS			
IC5	8-759-087-55	IC MPC1732MR2			
IC6	8-759-087-53	IC MPC1730MR2			
		< COIL >			
L1	1-412-058-11	INDUCTOR CHIP	10uH		
L2	1-412-058-11	INDUCTOR CHIP	10uH		
L3	1-412-058-11	INDUCTOR CHIP	10uH		
		< TRANSISTOR >			
Q1	8-729-024-26	PHOTO TRANSISTOR CPT-181S-C-TU (12cm CD DET)			
Q2	8-729-024-26	PHOTO TRANSISTOR CPT-181S-C-TU (DISC DET)			
Q5	8-729-141-48	TRANSISTOR 2SB624-BV345			
		< RESISTOR >			
R1	1-216-024-00	METAL GLAZE	91	5%	1/10W
R2	1-216-009-00	METAL CHIP	22	5%	1/10W
R4	1-216-663-11	METAL CHIP	3.3K	0.5%	1/10W
R5	1-216-663-11	METAL CHIP	3.3K	0.5%	1/10W
R8	1-216-081-00	METAL CHIP	22K	5%	1/10W
R9	1-216-075-00	METAL CHIP	12K	5%	1/10W
R10	1-216-075-00	METAL CHIP	12K	5%	1/10W
R11	1-216-663-11	METAL CHIP	3.3K	0.5%	1/10W
R12	1-216-077-00	METAL CHIP	15K	5%	1/10W
R13	1-216-077-00	METAL CHIP	15K	5%	1/10W
R14	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R15	1-216-085-00	METAL CHIP	33K	5%	1/10W
R16	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R17	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R18	1-216-073-00	METAL CHIP	10K	5%	1/10W

SERVO

Ref. No.	Part No.	Description			Remark
R19	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R20	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R21	1-216-073-00	METAL CHIP	10K	5%	1/10W
R22	1-216-033-00	METAL CHIP	220	5%	1/10W
R23	1-216-033-00	METAL CHIP	220	5%	1/10W
R24	1-216-033-00	METAL CHIP	220	5%	1/10W
R25	1-216-073-00	METAL CHIP	10K	5%	1/10W
R28	1-216-687-11	METAL CHIP	33K	0.5%	1/10W
R29	1-216-687-11	METAL CHIP	33K	0.5%	1/10W
R30	1-218-758-11	METAL CHIP	180K	0.50%	1/10W
R31	1-218-758-11	METAL CHIP	180K	0.50%	1/10W
R32	1-216-073-00	METAL CHIP	10K	5%	1/10W
R35	1-216-073-00	METAL CHIP	10K	5%	1/10W
R36	1-216-129-00	METAL CHIP	2.2M	5%	1/10W
R37	1-216-129-00	METAL CHIP	2.2M	5%	1/10W
R38	1-216-083-00	METAL CHIP	27K	5%	1/10W
R39	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R40	1-216-025-00	METAL GLAZE	100	5%	1/10W
R44	1-216-113-00	METAL CHIP	470K	5%	1/10W
R45	1-216-113-00	METAL CHIP	470K	5%	1/10W
		< VARIABLE RESISTOR >			
RV1	1-238-091-11	RES, ADJ, CERMET	22K		
RV2	1-238-091-11	RES, ADJ, CERMET	22K		
		< SWITCH >			
SW1	1-571-754-31	SWITCH, PUSH (1 KEY) (DISC SET)			

****

		MISCELLANEOUS	
		**********	
10	1-769-773-11	CORD (WITH CONNECTOR) (POWER)	
126	1-650-223-11	SENSOR FLEXIBLE BOARD	
⚠152	8-848-327-11	OPTICAL PICK-UP KSS-410A	
156	1-646-402-11	MOTOR FLEXIBLE BOARD	
163	1-652-794-11	PICK-UP FLEXIBLE BOARD	
F1	1-533-326-11	FUSE (BLADE TYPE) (AUTO FUSE) (3A)	
F2	1-533-331-11	FUSE (BLADE TYPE) (AUTO FUSE) (15A)	
M901	X-3367-484-2	MOTOR (SPINDLE) ASSY	
M902	A-3252-585-A	MOTOR (SL) ASSY (SLED)	
M903	A-3252-580-A	MOTOR (L) ASSY (LOADING)	
S901	1-692-441-11	SWITCH, MICROPHONE (DISC DET)	

****

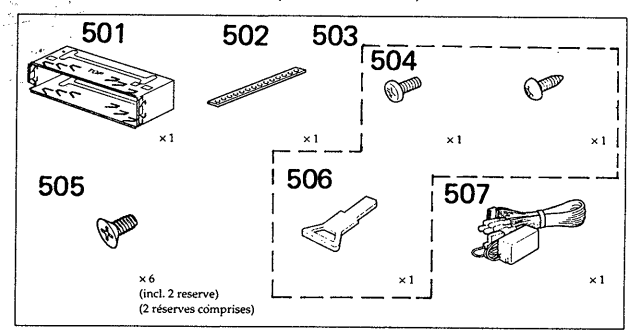
Ref. No.	Part No.	Description	Remark
		**********	
		HARDWARE LIST	
		**********	
#1	7-621-255-25	SCREW +P 2X4	
#2	7-621-770-67	SCREW +PTT 2.6X6 (S)	
#3	7-621-770-XX	SCREW +PTT 2.6X8 (S)	
#4	7-685-106-19	SCREW +P 2X10 TYPE2 NON-SLIT	
#6	7-621-772-10	SCREW +B 2X4	
#7	7-621-772-60	SCREW +B 2X12	
#8	7-621-773-95	SCREW +PTT 2.6X6 (S)	
#9	7-627-552-07	SCREW, PRECISION +P 1.7X2.5	
#10	7-627-852-17	+P 1.7X4	
#11	7-627-553-18	SCREW, PRECISION +P 2X2	
#13	7-627-553-37	SCREW, PRECISION +P 2X3	
#14	7-627-553-67	SCREW, PRECISION +P 2X5	
#15	7-621-775-50	SCREW +PTT 2.6X10 (S)	
#16	7-628-253-20	SCREW +PS 2X6	

****

		ACCESSORIES & PACKING MATERIALS
		**********
	3-810-778-11	MANUAL, INSTRUCTION (ENGLISH)
	3-810-779-11	MANUAL, INSTRUCTION, INSTALL (ENGLISH, FRENCH)
	X-3369-665-1	CASE ASSY (for FRONT PANEL)

****

		MOUNTING HARDWARE	
		**********	
* 501	3-916-161-01	FRAME, FITTING	
502	3-914-406-01	SUPPORT (ND), FITTING	
503	X-3370-076-1	SCREW ASSY (KEY), FITTING	
504	7-682-560-04	SCREW +P 4X6	
505	X-3369-934-1	SCREW ASSY (J), FITTING	
506	3-926-426-01	KEY	
507	1-769-773-11	CORD (WITH CONNECTOR)	



The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.

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